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METHODUS MEDENDI.

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OR, THE

DESCRIPTION AND TREATMENT

OF

THE PRINCIPAL DISEASES

INCIDENT TO THE HUMAN FRAME.

BY

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PREFACE.

It might be supposed that the number and excellence of treatises on the Practice of Medicine, should render any addition unnecessary. The science, however, is progressive, and much has been added of late to our knowledge.

As regards the present work, irrespective of the author's experience, a considerable amount of new and interesting matter, from our own as well as Continental writers, will be found embodied. The pathology of many diseases has been simplified, and the diagnosis, it is hoped, further elucidated.

It has been the intention to condense a large amount of useful information, and to convey it in language at once perspicuous and precise. The labour required to pourtray so great a variety of morbid conditions, and to present a faithful outline of the views of successive observers, has not been inconsiderable.

Should the undertaking prove in any degree serviceable to the profession, or conduce to the diminution of human suffering, the writer's object will be sufficiently realized.

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CLASS I.

FEVERS, AND FEBRILE ERUPTIVE DISORDERS.

I—FEVER, TYPHUS.

FEVER may be preceded by sound health or previous indisposition. Weakness, inappetence, and, disturbed sleep, are usual premonitory signs. Prior acts of indiscretion, undue exposure, or excessive exertion, are not unfrequent. In some, the excitement is great and protracted; in others, brief and feeble: many are stricken down at once, while a few pursue their wonted avocations for days. After the disease has fairly set in, the most powerful frame and vigorous mind in vain resist its influence: the energies of both, for the time, are effectually subdued and broken.

Headache, giddiness, and shivering, followed by a quick pulse, hurried respiration, hot skin, muscular debility, sighing, yawning, and despondency, are phenomena attendant on the invasion of fever. A few, though warm to the touch, complain of extreme cold. These manifestations, however, vary with the constitution and previous health of the patient, the season and period of the year, as well as the manner in which the disease has been contracted. The cephalalgia is often oppressive; in the plethoric, there are stupor, weight, and throbbing in the temples. The eyes are suffused and tearful, occasionally, red and injected, the mouth hot and clammy, the tongue white, the point and margins, perhaps, natural; at the same time, the breath is heavy and offensive, there is a bad taste in the mouth, and, perhaps, a stench in the nostrils; the thirst is commonly urgent. During the first period, the surface is red and dry; there is often considerable cutaneous transpiration; but, in more advanced stages, the skin is either wholly locked up, or covered with a tenacious moisture, while the temperature is so pungent as to obtain the name of *calor mordax*. The countenance is heavy and meaningless, or sorrowful and apprehensive; sometimes, the patient is dull and taciturn; or hilarious and talkative. As the disease goes on, individuals, at other times vigorous, become incapable of the slightest effort; the posture is commonly supine, and the patient, perhaps, slides to the foot of the bed. Yet, should the nervous centres become implicated, persons, seemingly overwhelmed with debility, will display a delirious animation, and even make efforts, that call for forcible repression. Now, or earlier, one or both parotids inflame, and, perhaps, suppurate; at the same time, some of the more important viscera may be implicated. Though the disease be styled continued, there are partial remissions towards morning, which, after a few hours, give place to the evening exacerbation. These remissions are most

obvious at the commencement, and towards the close. Sometimes, after one so prolonged as to suggest recovery, the malady resumes its previous violence, and runs, as it were, its course afresh.

Epistaxis, to which some attach a certain diagnostic value, is not uncommon at the commencement, and during the course of fever. The blood does not always flow externally, but congeals on the lining membrane of the nares, and, perhaps, induces slight dyspnœa. Sanguineous discharges sometimes take place from the intestines, and even the vagina; ecchymoses, also, may ensue beneath the surface. During the early stages, the patient is restless, and rarely found fast asleep; at other times, he enjoys a painful repose. Patients, indeed, will complain that they have not slept for days, though, perhaps, seen slumbering by the nurse, or roused by the coming in of the physician. As the disease advances, the tongue, from being moist and white, turns brown and dry, or even black and shrivelled; at other times, it remains moist and clean to the close.

Diarrhœa is frequent at the outset, and by many considered diagnostic of the complaint; constipation, nevertheless, often subsists. However loose the evacuations, hard feculent matter may lodge in the cells of the colon all through the complaint. Their aspect affords no evidence of specific lesions, since, as Andral observes, every variety of stool may accompany changes the most opposite. Bloody effusions have been known to fill the small intestines, without any manifestation during life of their occurrence. Epigastric tenderness varies greatly in intensity; it may subsist with or without concomitant abdominal affections. Soreness, it is to be observed, may arise from pressure on the distended colon. This distension is occasionally apparent through the parietes, and by thrusting up the diaphragm, may induce considerable dyspnœa. The stomach, in some cases, is so irritable, that vomiting is frequent and urgent.

There is a close relation between a quickened circulation, hot surface, and difficult breathing. The pulse, indeed, is usually rapid, full, and compressible, while the breathing is accelerated, and the skin hot. These are more observable in the evening, than the morning, in the erect, than the recumbent posture. In a few cases, the disease sets in with a small low pulse, cold surface and extremities; in such, reaction, if at all, is set up at an uncertain interval: congestive fever, for so this is termed, is not of frequent occurrence. The pulse is not always quick; Parr and others, have met with it only seventy; I knew it once fifty, and, in a girl, but forty; more frequently, however, it ranges from one hundred and ten, to one hundred and thirty. In rare instances, it goes much higher. A case not fatal is related by Dr. Young, in Barker and Cheyne's Account, in which it rose to one hundred and seventy; I also witnessed an instance, equally fortunate, in a young clergyman, in whom it mounted to the same height. The respiration is often much affected; I have witnessed intense dyspnœa, which might, perhaps, be styled nervous, without any pulmonary lesion; and there may be a sibilant rattle, with little or no cough or expectoration. The bronchitis, which Armstrong styles specific, rarely subsists, and he assigns an importance to it not borne out by facts. Abdominal affections are common in summer and autumn; those of the respiratory organs, in winter and spring.

The cutaneous eruptions occurring in fever, have induced many to class that disease among the exanthemata. Burserius devotes a large space in his Institutes to the consideration of petechial fever. Chomel, Naumann, and other later writers, attach greater importance to the measly eruption, styled *taches rosées lenticulaires* by the former, and *eines dem Typhus eigenthümlichen Hautauschlag* by the latter. In my opinion, cutaneous affections do not possess the diagnostic value once assigned to them; indeed, they are often absent. Spotted fever was supposed to indicate peculiar danger, and to be connected with putridity of both solids and fluids; years, however, may pass away without the occurrence of petechiæ, the mortality remaining unaffected. When they are of a large size, the term vibices is imposed, and are usually conjoined with much prostration. Petechiæ must not be confounded with fleabites which are comparatively impermanent. The rose-coloured rash may be mixed up with petechiæ, but is commonly distinct. Sudamina or the small miliary vesicles, so named, are less frequent. Side inspection renders them more apparent; they are also prominent under the finger, by the friction of which they are quickly effaced. I have met with one or two fatal cases, with that peculiar aspect termed goose-skin, *cutis anserina*. Pustules, boils, and jaundice, are occasionally observable; but erysipelas, particularly of the face, is more common. The enlargement to which the parotid is liable, resides less in the gland, itself, than the adjacent cellular tissue. A painful swelling of the lower extremities, not unlike phlegmasia dolens, has been adverted to by Tweedie, Stokes, Graves, and Chomel.

The disastrous occurrence of sloughs is mostly referable to debility, and the long continuance of the supine posture. Inattention, however, will add to their frequency. I have known them to occasion death, when the fever itself had ceased: I have, also, seen dreadful cavities above the sacrum to which they had led. Sloughs have been witnessed on the dorsum of the foot and inside the thighs. I have remarked them in the lobes of the ear and in the nose. Epidemic mortification of this organ, is adverted to by Naumann in his Klinik, and described under the denomination of *Blaunase* or *Nasenbrand*, in Hufeland and Osann's Journal for 1834. The nates occasionally slough: Chomel in his Clinique, and Bracken, in Barker and Cheyne's Account, describe a similar occurrence in the occiput where it might easily escape detection. I have observed gangrene in the lobes of the ears and in the heels, conjointly: the sacrum and great trochanter, however, are the most frequent seats. Sloughs, though rarely, will form in the folds of the thighs and hips. In all these cases, if care be not taken, flies, during warm weather, may deposit their larvæ in the sores. A shocking instance, in which the body and bed-clothes were almost covered with these disgusting insects, is related by Bracken. Cutaneous and intestinal sloughing, is, doubtless, occasionally concomitant. Phagedenic ulceration is rare: and Chomel warns us not to mistake fissures in the tongue for ulcers.

As the disease advances, the weakness and mental confusion increase, innervation and nutrition are perverted, if not at a stand. The mass of solids and fluids is diminished; the vitiated blood is imperfectly arterialized, and from being copious, rich, and florid, becomes poor, serous, and dark coloured. Often, the urine is retained too long, and the

contents, perhaps, trickle away, while the bladder remains full. From perversion of the blood, and its abnormal influence over the nervous system, the patient becomes progressively worse. There is constant muttering, delirium, *typhomania*, if not absolute stupor, the *coma somnolentum* of authors. Nothing is more striking than the incessant murmuring, mixed with raving and delirium, prevalent in the wards of an hospital. Some recognise their physician, others only the visionary objects of their waking dreams. A few may be roused from this condition, but the majority are insensible to every mode of address. The bladder and rectum are emptied unconsciously, the voice is reduced to a kind of gibber, and respiration is affected by short, tremulous fetches. Convulsive action of the muscles of the forearm, with twitching of the tendons, too often mark the advance of the disease. The patient seems busily engaged, doubtless without the slightest volition, picking the bed-clothes. During this affection, it is difficult to feel the pulse, owing to the tension, and contractions of the tendons against the fingers. Instances, at such times, to use the language of Ramazzini, occasionally ensue, in which patients lying prostrate, and almost pulseless, have left their beds, eaten and drank, and then, as if stricken by lightning, fall and expire.

Breathing being a semivoluntary act, the weakness affecting the respiratory, in common with other muscles, induces extra danger. Secretions and excretions alike, urine, sweat, and saliva, acquire a disagreeable smell, while even the feces are more offensive than ordinary. The odour compared to that of mice, is partly, perhaps, peculiar to the complaint, and partly to be ascribed to the trickling of urine into the bed; in other respects, the effluvium is variable, being fetid in some, and hardly apparent in others. Taste and smell, owing to the state of the tongue and lining membrane of the nares and fauces, are greatly impaired; the sense of hearing is commonly lessened, in a few instances unusually acute. I have witnessed intestinal perforation in a few instances; and Louis records eight, out of fifty-five, fatal cases.

Convalescence is characterized by a gradual diminution of the symptoms already described. Often, however, there is a rapid change for the better or worse, coincident with some notable evacuation, such as diarrhoea, epistaxis, or a warm equable moisture over the surface; but, for the most part, the transition is marked by no particular discharge, nor confined to any given day. An erroneous humoral pathology gave rise to the doctrine of critical evacuations and of critical days, a doctrine which ill deserved the currency it once enjoyed. On the whole, the duration of fever is variable, and depends on circumstances not always easy to appreciate. It may last five days, or, as I once witnessed, fifty; sixty, even, are recorded; from twelve to seventeen, but oftener fourteen, are most frequent. The disease, however, may begin and terminate so gradually, as to render it difficult to fix its exact duration. At the commencement of an epidemic the disease may last a fortnight, and towards the close, perhaps, not more than five days. In other respects, the shorter the fever, the greater the liability to relapse; so that a person may labour under the complaint five or six days, grow better, then relapse, and so on, for two or three times, till the disease subside. As convalescence advances, the lips and teeth cast off their adherent sordes, the tongue becomes soft, and, at

its point and margins, clean. For a few days, perhaps, these favorable changes will only be seen in the mornings. The urino deposits a sediment, the skin turns moist and clean, the eyes bright, hearing, appetite, and intelligence are restored, and the sopor is replaced by sound refreshing sleep. The patient, indeed, often seems to obtain a new lease of existence, and enjoys it with a relish proportioned to the transition. After prolonged and dangerous attacks, the convalescence is tedious and painful; phthisis, dropsy, paralysis, and other chronic complaints, may ensue. Often, the hair falls off, and there is desquamation of the cuticle. Some complain of singing in their ears, and a few display a temporary insanity, *μεγάλου νοσηματος λησις*.

Lesions after death are not constant; I have often not discovered any, or any adequate to the production of death. Of those dying of what are termed essential fevers, observes Andral, the small, and, more frequently, the large intestines, are exempt from every change. Louis, Dalmas, Cayol, Martinet, and Bouillaud, all record fatal instances without any local affection. The mucous membrane of the small intestines, writes Louis in one instance, likewise the elliptic plates of the ileum, were free from all traces of alteration. Bouillaud and Chomel, and others, aver that the digestive tube was perfectly healthy; and Alison, Neumann, Gerhard, and Lombard, make similar admissions. Marks of gastric disease are far less frequent than the affirmations of Broussais, Bouisseau, Roche, Stokes, and others, would imply. Commonly, there is no departure from the healthy state; sometimes, there is slight discoloration, occasionally, softening and ulceration of the inner surface; alterations, however, not confined to fever, and very equivocal indications of inflammation. Softening, in particular, would seem merely a cadaveric change, and was often detected by Andral without the least evidence during life of its existence. In the twenty-first case of Chomel's Clinique, all three coats of the stomach were ready to slough out; and a pupil having placed his finger on the black spot, an aperture through which fluid passed, quickly ensued. In four instances by Louis, the ulcers did not penetrate the mucous coat, and were from two, to three lines in diameter. Alterations, not follicular, of the large and small intestines, are not numerous. A reddish tinge confined to the mucous membrane, or extending to the three coats, is occasionally visible, even through the peritoneum; Chomel speaks of sanguineous infiltration with thickening, from a few inches, to as many feet, confined to the mucous coat. The hue varies from a rose colour to a reddish black, and fluid may be expressed by the handle of the scalpel. Blood, however, may be exhaled apart from ulceration or erosion. Softening and discoloration are not confined to the vicinity of the altered plates.

The abnormal development of the mucous follicles of Peyer and Brunner, along with enlargement, induration, or softening of the corresponding mesenteric glands, are frequent occurrences in fever. These glands have been seen large as a pigeon's egg, perhaps soft and tending to suppuration, of a red, violet, or blackish aspect. Louis found one near the cœcum, which had undergone purulent conversion by the forty-ninth day; and the parieties were so thin, that rupture and effusion, had the patient lived, could not have been remote. The glands contiguous to the altered plates, are those principally affected. Sarcone, Röderer and Wagler, Prost, Broussais, Petit and Serres, Andral,

Bretonneau, and Louis, describe the alterations here adverted to, while they are portrayed in the plates of Baillie, Cruveillier, Carswell, Hope, and Bright. The plates or agglomerated follicles of Peyer, when affected with disease, are of an oval form, often apparent through the coats of the intestines. The term *dothi-enteritis*, meaning pustular enteritis, has, in such cases, been applied. The cœcum and close of the ileum, being the principal seat of the plates, are the parts mostly affected; the isolated follicles, or those of Brunner, may be similarly implicated. In colour, the eruption alternates from white to red, along with that of the adjacent mucous membrane; the consistence, also, is variable. The dimensions may be from two to three square inches or larger, till they dwindle to a single follicle. The plates are seated opposite the insertion of the mesentery, but the single follicles occupy every part indifferently. In the large intestines, the plates are smaller, whereas the follicles, those in the rectum excepted, are larger, as well as more numerous. The number of plates varies from one to twenty, but the amount of the follicles is quite uncertain. Orifices are discoverable on examination, but the several mucous crypts may be so closely blended together, as not to be separately distinguishable. The muciparous glands, as they are also termed, may undergo resolution, or proceed to gangrene and ulceration. In the first case, they gradually lose their prominence, and assume their wonted healthy aspect. What the French term *plaques gaufrées*, that is to say, plates in the first stage of alteration, are the only ones which undergo resolution: in the reticulated plates, *plaques réticulées*, partial gangrene has already commenced. It has not been determined whether sloughing be a necessary precursor of ulceration, whether the latter take place at other points besides the altered follicles, or whether it ever extend beyond them. Ulceration sets in about the tenth day, and is much less frequent in the isolated, than the agminated follicles. The sloughs involve the mucous coat, or both mucous and muscular coats, and may come away in soft fragments or debris, or single masses of a greenish yellow hue. The ulcers are oval or round, much as if punched out; often they run together, so as to involve a considerable portion of the mucous membrane. When the slough is detached, the submucous cellular tissue, or even the peritoneal coat, forms the base of the ulcer. Should complete perforation ensue, inflammation and death are the almost inevitable result. The communication, Louis informs us, rarely exceeds three lines breadth; it almost invariably occurs at the termination of the ileum. Intestinal cicatrices differ less from the surrounding mucous tissue, than those of the surface do from the skin; they even, it is said, disappear, the normal tissue being reproduced, or a kind of serous membrane or pellicle is substituted.

Worms are a coincidence not uncommon in fever, but, contrary to popular estimate, the disease rarely, if ever, owes its origin to them. Lumbrici are expelled, occasionally, alive: Rœderer and Wagler drew attention to the prevalence of the trichuris in the epidemy at Göttingen. Striking changes are undergone by the spleen, hypertrophy and softening, sometimes excessive, more especially. This organ is even more frequently implicated in continued, than periodic fever. Structural changes are not discernible in the liver: neither Bouillaud nor Audral lay any stress on such. Louis and Chomel, indeed, once detected softening so considerable, as to admit the finger on pressure.

Hepatitis is adverted to in Barker and Cheynes' Account, but seems to be inferred from the symptoms, rather than demonstrated after death. Nephritis has been observed, but the kidneys are rarely affected. Bouillaud is one of the few modern writers who refers a form of fever, angeio-carditis, to inflammation of the great vessels. The sanguineous tinge, however, on which he could found it, as demonstrated by Trousseau and Rigot, is of cadaveric origin. Imbibition, indeed, is readily induced by immersing portions of aorta in blood. The heart has been found soft, while fibrinous concretions have been detected in its cavities. In a few instances, the epiglottis and larynx ulcerate, and are deprived of their cartilages. The bronchial lining, perhaps, is less frequently affected than the pulmonary tissue, but the dark red swollen aspect of the former, as Tweedie remarks, is different from the pale pink hue of health. Hepatization of the lungs, unfortunately, is not rare, but it seldom goes the length of the grey stage, unless the inflammation, as in lobular pneumonia, be confined to a small portion of the organ. Sometimes the lungs are congested so as to resemble spleen, and so soft, as not to resist the pressure of the finger. Infiltration of the air cells with a frothy or bloody mucus, has also been noticed. The tissues, even before death, occasionally lose their vital resistance, so that different fluids transude; hence accumulations of blood and serum, as well as the hypostatic pneumonia signalized by Piorry. Analogous cadaveric changes are regulated by the prone or supine position of the remains. Nothing is more common than are sanguinolent effusions after typhus, in the pleura, pericardium, peritoneum, and ventricles. The integuments, likewise, are commonly infiltrated.

Notwithstanding the opinions of Clutterbuck, Marcus, Percival, Mills, and Smith, as to phrenitis being always or often the point of departure in fever, it would be difficult to gather, even from their works, evidence of its frequent occurrence. Pathologists, indeed, are at variance as to what constitutes cerebral inflammation, the appearances considered conclusive by one class, not being so regarded by another. Granting with Chomel, the frequency of functional disorder, we must coincide with him, that the organ in question is one in which structural mischief is rarely discoverable. Louis and Andral make similar admissions in equally decided terms. Injection and infiltration of the arachnoid and pia mater, softening of the brain, and bloody points on making a section, are the alterations usually insisted on. Those copious adhesions and effusions, the modifications of texture, and purulent deposits indicative of decided inflammatory action, are rarely met with.

Our knowledge of the pathology of fever is unhappily limited. After describing the complaint, its varieties, complications, and making a few inferences beyond, little remains to be said. We know nothing of the indoles of the complaint, or its proximate cause—why it lasts a given period, and then declines. Fever is a disease of the whole system; it affects the solids and the fluids, the organs of digestion, circulation, respiration, and relation; it affects the body, and it affects the mind. It is a disorder with peculiar characters, often propagating itself by a poison, which, not unlike a leaven, sets up a new series of actions in the system. In other respects, individuals are variously affected: in some there is inflammation, in others none; some get better and recover,

while others grow worse and die. The intestinal follicles are inflamed in one person, the lungs in another, while the brain is affected in a third. A few perish in whom there is no discoverable lesion, while others gain health and strength in cases where organic derangements have been numerous and severe. As fever pursues its course, there is progressive deterioration of structure and function; yet, for all this, when the disease is at its height, when destruction seems to impend, it quickly or slowly takes a turn, and all does well.

Inflammation, far from unavoidable, often complicates fever; but it is after a modified fashion, and not of the idiopathic stamp. Pneumonia, perchance, forms an exception, otherwise: arachnitis, pleuritis, peritonitis, and enteritis, do not occur in fever as they do apart. Hence the erroneousness of doctrines that would set it down as a mere symptom of cerebral, meningeal, pleuritic, pulmonary, or abdominal disease. Abnormal development of the muciparous glands has been discovered, though much less frequently, in scarlatina, cholera, and other affections. The complaint has been connected with alterations in the blood, deficiency of fibrin or of the saline ingredients, but such changes are contingent, as they are inadequate to account for so many striking phenomena. The humoral pathology, as a link in the chain of cause and effect, is very well in its way, but to look on it as affording an explanation of fever, would only be to plunge into exploded futilities. Copland is of opinion that the efficient agents act primarily and chiefly on the organic or ganglionic nerves, inasmuch as they are intimately connected with the apparatus of respiration, circulation, secretion, and animal heat, all which are specially disordered. The functions just enumerated, however, are not less implicated in variola, rubeola, scarlatina, and symptomatic fever. The great frequency of structural change must never be lost sight of; but, there is a wide distinction between alterations productive of death and those which are not. All such, however, it would seem, must be preceded by functional disorder; and if so, we cannot side with Rostan, who, not believing that fevers can exist without a seat, considers them as such, inadmissible. Any form of the disease may probably ensue without contagion, and yet, subsequently propagate itself through the instrumentality of the latter. The poison of fever is a specific one, not directly tangible by the senses, but cognizable through its results. The symptoms, morbid anatomy, diagnosis, and etiology, are, in fact, the pathology of fever, so that it is needless to take up time refuting exploded errors or those of doubtful currency.

Notwithstanding the frequency and great mortality of fever, it is more frequently confounded with other diseases than could reasonably be expected. Symptomatic, is often mistaken for idiopathic fever, but, if the diagnostic tokens be kept steadily in view, the risk is comparatively small. When pains in the back and head, thirst, loss of appetite, sickness, debility, rigors, succeeded by burning skin, with a bad taste in the mouth, are followed by the peculiar and progressive aspects of the malady, there can be little scope for uncertainty. Some temperaments are so irritable, that the circulation is readily roused into unwonted action, and, unless we have a little patience, the state of the case is easily mistaken. Times without number, I have seen all the preliminary symptoms of fever subside in four and twenty, or eight and forty

hours. Influenza or epidemic catarrh, often commences with violent excitement, in many instances greater than what attends the disease under consideration. Periodic fever need not be mistaken for continued; and the precaution of not deciding till a few days elapse, is obvious with regard to cases that might terminate in measles, scarlatina, or variola. Miliary fever, occasionally, is epidemic. Children, scrofulous ones especially, are subject to invasions which subside quickly as they arise; but, the contingency of mesenteric hectic, or acute hydrocephalus, must not be lost sight of. Young people, indeed, are liable to common typhus, which must not be confounded with the derangement indicative of intestinal disease.

The learner is puzzled when one authority assures him that fever is the mere result of inflammation, another, that the latter can only be regarded in the light of an accidental occurrence. After long experience, and the careful perusal of writers on both sides, I am decidedly of opinion that the complaint may run its course apart from local inflammation. The evidence for this is perfectly clear, and fortified by examinations after death, not less than the concurrent testimony of the ablest pathologists. Uterine, crural, and traumatic phlebitis, irritative fever, peritonitis, enteritis, dysentery, pneumonia, and pleuritis, have all been confounded with fever, and conversely. Some of these maladies take on a typhoid character, especially in the aged, who enjoy comparative immunity from idiopathic fever. The prostration is rarely so considerable in the primary stages of simple inflammation, as in those of fever: the disproportion between the symptoms and local complications, if any, in the latter, is commonly altogether striking. In the former, there is great arterial excitement with little sensorial disturbance, while, the lesions discoverable in the latter, in general, are much less marked. The frequency of incidental inflammation varies with the season, and the state of the community in which fever is rife; hence, it is, that we have thoracic affections in the spring, abdominal ones in the fall; hence, also, fever with high excitement, or with low. Pneumonia, indeed, may attack those who have incurred no atmospheric exposure: it may, even, be superinduced in the weak and debilitated, by long continuance in the supine posture. Depressing passions, innutritious food, cold, damp, inferior clothing and fuel, pave the way for fever and dysentery; hence, their frequency in Ireland, in military encampments, ships, jails, and besieged cities. As continued, has been known to supervene on intermittent fever, and intermittent, on continued, some have erroneously argued their identity. The seasoning fever of warm climates, appears sometimes of the intermittent, sometimes of the continued stamp; whether both can combine, has, probably, never been mooted, and difficult or impossible to determine.

In large towns and among the richer classes, affections of the brain are common; and it is to functional disorder, if not to change of structure in this important viscus, that the mortality is mainly owing. These classes are not only better fed and less worked, but exposed to considerable excitement and proportionate exhaustion: hence, its fatality among such, the younger branches of the profession inclusive. The poor and badly nourished, though liable to anemic affections and abdominal disorder, are much less so to serious cerebral change. It is often difficult, however, to determine where functional disorder ceases, and

structural lesion begins ; and phenomena, seemingly indicative of cerebral lesion, ensue without any ascertainable alteration. The symptoms which denote cerebral complication, are pain in the head, confined to the temples or extending to the occiput, flushing of the countenance, intense heat of the scalp, suffused conjunctiva, glistening eyes, intolerance of light and noise. Occasionally there are delirium and extreme fretfulness ; but I have witnessed a good-natured, half-smiling indifference merging into coma and death. At such periods, individuals require to be closely watched, as they not very unfrequently become capable of sudden and violent efforts, implicating their own safety or that of others. If the local affection continue, the patient rolls his head from side to side, mutters incessantly, else lapses into insensibility ; while subsultus tendinum, involuntary urine and feces, usher in the final close. The pulse is of variable frequency, sometimes full and hard, at others, small and irregular ; I have known it dirotal. When effusion or change of structure has taken place, the mouth is often drawn to one side, the eyes squint, and the pupils are dilated ; occasionally we see apoplexy, paralysis, or convulsions. I have in two or three instances, been aware of effusion on one hemisphere, followed by paralysis on the other side, generally confined to an upper extremity. In six or eight others, the convulsions were of an epileptic character, and for the most part, fatal.

Pulmonary disease, unfortunately, is often latent, that is to say, marked by none of the usual signs. How frequently observes Andral, do we find the greater part of the pulmonary parenchyma impermeable in cases wherein, during life, neither cough, expectoration, a little mucus excepted, nor any other derangement of respiration, was appreciable. Latent peripneumony, says Landre Beauvais, is one of the most striking instances of the great modification of an important organ that is announced by no sign. To which Stokes adds, a dusky hue of the face, trifling cough, with or without expectoration, and slight dyspnoea, may occur without the patient complaining of his chest, though there be fatal and extensive disease. Owing, to diminished reaction, the tendency to latent complications in fever, is often very considerable. Inflammation may affect the whole of one lung, or extend to one or more lobules only. In the latter case, there is often no further change in the respiration than slight puerility. Pneumonia may occur at the outset, or during the course of fever ; occasionally, it is very frequent. In many instances, inflammation extends from the mucous membrane to the parenchyma, and we have bronchitis and pneumonia combined. Bronchitis, however, may subsist alone, as also pleuritis, but the latter is comparatively rare. Typhoid pneumonia is slow of resolution ; it may even lapse into chronic hepatization, or prove the source of tubercles. The rational signs consist of pain in, and over the chest, cough, dyspnoea, mucous, then, tenacious rusty expectoration, and a brick-red flush over the malar eminences. The physical signs, as laid open by the genius of Avenbrugger and Laennec, must also be had recourse to. Cephalic, abdominal, and thoracic affections sometimes alternate, and more or less mask each other. In all doubtful cases, however, we should have recourse to auscultation and percussion : for, as the father of medicine has said, μέγα δὲ μέρους τῆς τέρχνης το δυνάσθαι σκόπεῖν.

Intestinal complications are attended with no certain signs; the identity of fever, indeed, with mere gastro-enteritis, is openly relinquished or tacitly disavowed. In colitis or dysentery, we have more or less inflammation of the mucous coat; muscular enteritis, however, does not ensue, and peritonitis, perhaps, never, unless in the event of perforation. When the follicles are affected, they become red and swollen, often slough and ulcerate; at the same time, the intervening mucous membrane is not necessarily implicated. Every form of diarrhœa, with bright ochrey discharge, and even bloody stools, may ensue without any notable alteration; while, on the other hand, the alvine discharges are often natural and regular, concurrently with extensive disease. The indications furnished by the mouth and tongue, as well as by epigastric pressure, are not more certain. A dry, hard, foul tongue, may subsist with every condition of the intestinal canal, and local soreness with visceral integrity; while extensive mischief may be going on that is indicated by no known sign. Sanguineous effusion beneath the integuments, is sometimes a source of local pain. Peritonitis is marked by acute suffering, quick small pulse, vomiting, retracted belly, and miserable countenance. These symptoms, however, as we find in the forty-second case of Chomel's Clinique, are sometimes simulated in instances wherein, from the recovery of the patient, it is tolerably obvious perforation had not ensued.

Pinel, commencing his Nosography, observes that an immensity of writings have appeared on the subject of fever, some confined to the sterile language of the schools, and worthy of eternal oblivion, others filled with changeable theories or stuck out with vain therapeutic formula; for all this however, he proceeds to treat of fever under innumerable heads. Many writers indulge in similar prolixities, and though far from denying varieties, I do not think they indicate the fundamental distinctions they were meant to point out. Pneumonia, dysentery, variola, and rubeola, might, with almost equal propriety, be submitted to similar divisions. Some would distinguish typhus, from typhoid fever, confining the latter to large towns, as Paris, and referring the former to the febris bellica or castrensis, and the Kriegsppest of the Germans. Lombard and Gerhard insist largely on this, and affirm not merely that typhus and typhoid fever are distinct, but, that the latter is not contagious, and that it presents exclusively, the pustular alteration of the follicles or dothi-enteritis, already signalized. No such distinction, however, subsists; all known varieties run into each other; every modification may present itself concurrently or successively in the same individual, and similar alterations are met with in all. The brain and nerves, in what is styled nervous fever, the stomach and bowels in gastric or mucous, the liver in bilious, and the bloodvessels in inflammatory fever, severally, exhibit no peculiar alterations. The great frequency and fatality of fever have induced writers, with a very contrary object, to create divisions that merely serve to obscure the subject.

As to the severity and great mortality, both aggregate and comparative, of fever, no practitioner is ignorant. To have the disease, is to be in danger. Some, however, suffer more than others; the vigorous, the plethoric, the well-fed, those in the prime of life, anxious heads of families, are carried off in numbers. As in cholera and plague, persons in easy circumstances less readily contract the complaint, but, when they

do, the relative mortality is increased. During Irish epidemics, from one to ten, to one in three, died among the wealthy sick, whereas, of the sick poor, not more than one in thirty. The loss, at first, was greater among males than females; subsequently, the ratio became more equal. Pregnancy and childbearing were dangerous complications, but, at other times, as Hildenbrand has remarked, women withstood the assaults of typhus better than men. Professional persons, physicians, and clergymen, often suffer severely. In ordinary years the mortality varies, but the causes are not apparent. During those months, says Welsh, in which the mildest cases were received at Queensbury house, the worst cases and most numerous deaths occurred at the Infirmary, and, conversely, though patients were carried indiscriminately to both, and the hospitals scarcely eight hundred yards apart. Irish practitioners take the average mortality in both sexes, and at all ages, epidemics apart, at about one in ten, to one in fourteen; but, if children be excluded, the rate is higher. This proportion nearly agrees with that assigned by Cowan in Glasgow. Similar, and sometimes much worse returns have been made in England and the continent; yet, out of one hundred and forty cases mentioned by Mackintosh, and sixty-three by Williams, they severally relate but one death.

Other circumstances alike, the mortality varies with the vital powers as influenced by hereditary constitution, previous habits, and by-gone disease. Few adults are affected in whom the integrity of some leading viscus has not been impaired, and on which, therefore, the malady is apt to exhaust itself. Even character has its influence, as shewn by the partial immunity of infants and children, and the good effects of that cheerfulness which anticipates a favourable issue, but is not afraid of the worst. A multitude of signs, whether for good or for ill, are not peculiar to the disease, but extend to the febrile exanthemata and different inflammations. The number and intensity of the complications are a special point in the prognosis. Pneumonia in the lobular form, even, is a serious addition; still more so, if conjoined with intestinal ulceration or cerebral determination. Its accidental supervention, however, has proved the means of saving life by causing revulsion from the head. The latency of some affections, as pneumonia, sloughing and ulceration of the glands of Peyer and Brunner, softening and enlargement of the mesenteric glands and spleen, enhances the difficulty of the prognosis—critical evacuations, as they are termed, indicate alterations, if any, that are consentaneous with the discharge. Warm genial moisture over the surface, indeed, clear urine, and a soft clean tongue, are precursors of recovery. The lateritious sediment, as Lettsom remarks, has been known to precede death. Abscesses do not possess the critical value once ascribed to them. Diarrhœa, towards the close, has been considered favourable.

The blood, in the course of fever, undergoes certain changes to which the terms watery, dissolved, and putrid, have been applied. A living fluid, like the blood, cannot become putrid, but alterations do occur, which exercise much influence on the disease. Petechiæ and vibices, eschars and intestinal hemorrhages, are all more or less connected with the condition of the circulating fluid. Superficial sloughing retards convalescence, but irritation, exhaustion, and death, as I have more than once had occasion to witness, are induced by extensive eschars.

Indeed, the complications incident to fever, by the diminution of vital energy, and perversion of the processes of life which they engender, are more destructive, in the main, than the disease itself. I have seen fatal cases in connexion with a clean tongue and regular pulse. When the latter ranges from one hundred and thirty to one hundred and fifty, instances of recovery are rare; and should it become feeble and miserable, incapable of being permanently raised, it is the forerunner of certain death.

The condition of the nerves and organs of relation is of great moment. Delirium, in the early stages, may result from an affection of the brain, and, if violent, implies great danger. That witnessed in the advanced stages, is connected with anemia, and disappears with convalescence, or on the application of stimuli. It shows itself, in some, by a subdued, yet continued raving, which, perhaps, a loud word dissipates, after which the patient again lapses. He lives, for the time, in a world of dreamy fantastic imagery; but, further, is unconscious, till roused by recovery to active perception of the real living world. On the eighteenth day of my disease, says Foderé, I awoke, as out of a deep sleep, astonished to find myself alone with the man who took care of me, and whom I mistook no more. There is, perhaps, no easier transition than that of a person thus circumstanced: he feels neither pain nor sorrow, and slips off his mortality without a groan.

Hemiplegia, coma, and paralysis, declare serious cerebral lesion. In the stupor of typhus, we can fix the attention, were it only for a moment; but, in coma, nothing suffices to rouse. The imperfect utterance in fever is to be referred to debility and defective innervation: to the same cause must be ascribed deafness, faulty vision, and muscular torpor. In extreme cases, the patient loses command over the organs of deglutition—drink falls into the fauces—the limbs and trunk obey the dictates of gravity, and there are subsultus and earphology. When this last is slight, it is of less moment; but, when the person is constantly fumbling and picking the clothes, the augury is bad. Not less serious is involuntary passing of urine and feces; the circulating fluid, indeed, is so depraved, as to exercise the worst influence on the brain and senses.

The expression of the countenance is of much value. The description left us by the Coan sage has been handed down and quoted, generation after generation: in effect, the dark hollow eye, sunken features, and dropping chin, only need the dying rattle to announce the last struggle. Yet, it is surprising through what changes patients will live; and practitioners are occasionally astonished to find those left apparently dying, sitting up on their return. In some, hope and cheerfulness announce a favourable change, while, in others, the intellect remains intact till the final and fatal close. There is sometimes an appearance as if a little *finu* mould were scattered on the cheeks. Andral, adverting to a case in which this dust of death presented itself, says, the features were altered to the greatest extent, the face was deeply hollowed, and covered with the sordid powder which is the forerunner of dissolution. We are never quite certain till convalescence be complete. Joseph Frank tells us of three females who died in this stage. The fatal event was preceded by violent cephalalgia, which no remedy could assuage; yet, nothing was discoverable, save, in one of

the cases, a little serum in the brain. As for this author's assertion, that relapses seldom or never ensue in typhus, it is erroneous.

The causes of fever, contagion apart, are plunged in deep obscurity. In many instances, it assails a person in apparent health; in others, the attack is preceded by indisposition, over-exertion, want, fear, watching, or exposure. In temperate climates, famine is the invariable precursor of epidemic fever, *λοιμὸς μετὰ λιμὸν*: men's minds and bodies become equally weakened, and less able to resist impending evil. War, again, promotes disease by the wanton or needless destruction of the materials of subsistence, and the suspension of agricultural operations. Soldiers themselves, defeating and defeated, alternate victims of privation and debauchery, are often swept away, more by pestilence than the sword. Ships, hospitals, encampments, and barracks, as we learn from Pringle, Lind, and other writers, have been dreadfully ravaged. The connexion of epidemics with comets, meteors, earthquakes, and floods, is wholly imaginary: poverty, wretchedness, and distress, are much more frequent sources. Marsh miasms are never the origin of continued fever, and putrid effluvia very rarely. Contagion is by far the most active agent in the propagation of fever; but, when terror, hunger, cold, and moisture, in fine, any thing, as Hufeland remarks, which tends to weaken the vital powers, and to act as a predisposing cause, operate, it becomes truly influential; and it is then, that a single focus of infection may involve thousands, and entail the worst results. Let the current crop fail, starvation and beggary result; the complaint soon springs up, and is circulated in every direction on the persons of houseless wanderers. Eighty thousand are reported to have perished in 1740, and again, in 1817, of fever, in Ireland; and, if we suppose that one died in thirty, it yields, each time, an aggregate of nearly two millions and a half, and affords some conception of the desolation, misery, and suspension of human pursuits, such a scourge inflicts.

It is an important fact that when human beings frequent the same locality, or even maintain the contiguity entailed in a march or encampment, without due attention to cleanliness and ventilation, a poison is eventually generated, capable of producing fever in those who are freshly exposed to it. Hence the jail fevers, formerly so destructive; hence, also, the black assizes of the Old Bailey, Exeter, Oxford, and Cambridge, in which the infection spread with deadly results, to the lawyers and people in the courts. Fordyce adverts to the fact of persons becoming hardened to the effects of the contagious principle; and, as Hildenbrand remarks, there can be no doubt of the insusceptibility acquired by nurses, physicians, and clergymen. Those who have had fever in the typhoid form, are afterwards less liable: age, also, brings comparative immunity; but I have known many instances of its being contracted again and again. A young man who had been sent before my eyes ill of fever, into an hospital, was not well convalescent till he took it afresh. In this way, three months elapsed before his recovery. Joseph Frank was of opinion that typhus had vanished without a trace, from several countries; and at Wilna, for all his efforts, he could not, from 1818 to 1823, obtain a case for demonstration. Dr. King informs me that Brighton is similarly exempt. All this goes to show that sporadic cases, unless want and misery predispose, will not lead to epidemic. Hence the

perpetuation of fever in Ireland, where I have never failed to meet with it since the commencement of my career. We are indebted to Haygarth, Ferriar, and Currie, for their advocacy of fever-hospitals: yet, as Bateman, Tweedie, and Smith have shewn, if they obviate the disease in one direction, they tend to spread it in another. On the return of the French fleet in 1757 to Brest, many hospitals were erected, whence typhus extended with great mortality, to the medical and other attendants. During the epidemic in Edinburgh, Alison and Welsh relate that many of the hospital clerks and nurses contracted fever. It was common, says the younger Frank, for workmen to be brought into the hospital at Vienna on Sundays, about a week after they had been in to see their friends. This is an occurrence to which I have witnessed many parallels. When fever cases, however, are mixed up with others, and when ventilation and cleanliness are adequately attended to, the communicability of the disorder is singularly lessened. This would seem to suggest the abolition of fever hospitals, as such, and the substitution of general hospitals, which, with other precautions, would go far to allay the propagation of the complaint. If we were to admit a typhus and a typhoid fever, indeed, one contagious, the other not so, it would modify our views as to the extension of the malady. The distinction, however, is illusory, for, as Roche observes, we see no difference in these disorders except in the energy of their causes and violence of the symptoms. They are alike owing to prolonged moisture, misery, uncleanness, inferior food, over-fatigue, and depressing passions, and display the same meteorism, abdominal tenderness, dry fuliginous tongue, twitching of the tendons, stupor, delirium, deafness, cough, viscous expectoration, livid surface, fetid excretions, gangrene on pressure, and petechiæ. In fine, there is the same succession of symptoms, the same structural and functional disorder; in a word, typhoid fever is sporadic typhus, and typhus is epidemic typhoid fever. At the school of La Fleche, a destructive epidemic of dothi-enteritis broke out among the pupils, and different instances are related by Leuret de Nancy and Gendrin, of the infectiousness of typhoid fever so named.

The influence of the causes productive of fever in early life, has often been adverted to. There appears something in the constitution which predisposes to the complaint, and which repeated attacks, continued exposure, or advanced age, wears out. The supervention of fever in consequence of inhaling a patient's breath, or the odour from his evacuations or person, as well as indirectly from the lodgment of miasms on walls, bedding, or furniture, is matter of notoriety. When the poison has not been concentrated by defective ventilation, the infecting distance seems limited to a few feet. Much depends on the period and duration of the visit, the character of the attack, the cleanliness of the patient, position and proximity, as well as the health and stamina of the visitant. Phthisis, ague, scorbutus, and salivation, are very questionable preservatives; and people have contracted the disorder while they laboured under a mercurial course. The period of incubation may be from a moment, as it were, to a few days. I would consider the mucous surfaces as the principal medium of infection.

Were the number of writers and of remedies a criterion, fever should be most amenable; as it is, however, nature is the principal physician. And it is to be feared that the curative measures, hitherto instituted,

have not materially lessened the aggregate mortality. The frequency of epidemics removes the disease, in a measure, beyond the pale of treatment, and medical men themselves are carried off in numbers. During the former, however, the aggregate mortality is great, but the comparative mortality is notably less. Well-concerted measures would lessen, if not do away with these dreadful visitations, but the defective structure of society would go far to neutralize such at present. However this may be, the practitioner is enabled to study individual cases with their complications, and by judiciously adapting the resources of his art, does much as circumstances permit, towards their mitigation and removal. Sydenham has been slavishly followed in his dictum, as to the variety observable in the character, and, therefore, in the treatment of febrile epidemics. The constitution of the air, I suspect, has less to do than the constitution of the patient, and the condition of the community wherein the disease prevails. The same variety is observable during epidemics, as at other times; abdominal affections prevail in autumn, and pulmonary ones in spring. In other respects, typhus is commonly less frequent in summer than winter.

Those writers, who, like Pinel and the Franks, divide fever into numerous varieties, complicate and embarrass the treatment. According to such, we no longer have a given malady, with certain symptoms and complications to deal with, but a number of distinct affections, bearing such epithets as mucous, nervous, putrid, adynamic, ataxic, and typhoid. I would not advocate a simplicity that nature did not sanction; but, assuredly, fever does not present varieties more numerous than most other diseases. From whatever cause the malady may arise, the treatment is mainly alike. It may sometimes be arrested at the commencement, but rarely or never, where fairly formed. Neither, in this last case, can it be shortened. As Peter Frank observes, it reaches a certain morbid climax, from which it as gradually declines. Hildenbrand admits the practical intervention of remedial measures, so as to keep the complaint in bounds; and Autenrieth would supply by artificial agency, the deficiency of nervous influence, till the brain should exercise its wonted salutary power.

As the onset of the disorder is productive of considerable alarm, one of the first duties of the physician is to allay it. Let us also ascertain the condition of the skin and circulation, the history of the attack, and sensations of the patient. The muddy confused eye, quick pulse, burning surface, flushed and altered countenance, speak to the experienced practitioner for themselves. The sufferer is generally in bed; if sitting or standing, he is supported by another. The date of the disease, and the existence or absence of morbid complications, must be ascertained by careful inquiries. In young and vigorous subjects, inflammation will require moderate blood-letting, but to a less extent, unless the patient be early visited. The inflammation which occurs in fever, will not generally bear the active treatment that idiopathic cases require. This rule may be set aside, perhaps, in the plethoric denizens of large towns, but certainly not in the over-worked, under-fed mechanic and labourer. Fever from infection usually bears depletion worse than that which springs from other causes. In most cases, however, there is a period of excitement which eventually lapses into prostration and stupor. I have treated at the same time, and in the same

hospital, cases in which the excitement, styled inflammatory, subsided early, others late; and others, again, in which it continued almost throughout. Joseph Frank observes, that typhus, though seldom admitting or requiring venesection, presents instances in which life depends on its proper employment. Burserius looks to the vital powers: if these languish, if the pulse be small, weak, and compressible, if lipothymia ensue, and the temperature be low, there is no occasion for letting blood. Hildenbrand condemns the practice in general; and Bufalini observes, that putrid maladies only support it in great moderation. Of the writers in Barker and Cheyne's Account, some recommend leeches, others the lancet. The latter is also advocated by Clutterbuck, Marcus, Welsh, Percival, Bateman, Smith, Tweedie, Armstrong, and, more especially, Mills. It causes the face and lips, this writer observes, to become pallid, the strength and frequency of the pulse to diminish, the heat of skin and pain in the head to abate, ensures a return of the secretions and copious dejections. Foderé, Strack, and Prichard, likewise, recommend blood-letting; while Schmidt and Cheyne affirm, that it often cuts the disease short, and strangles it in its birth. Pathologists, who ascribe fever in all cases to inflammation, attach great importance to bleeding, and almost unavoidably fall into the error of ascribing recovery to this remedy. It is one, however, of qualified utility; and only indicated once, or oftener, during great excitement or local inflammation. I have, in instance after instance, cut short fever at its onset, by the evacuation of twelve or fourteen ounces, followed by an emeto-cathartic mixture; but I would confine this treatment to the cases to which I have adverted, and they constitute a small and varying proportion of the whole.

Of all the remedies by which fever, in its first stage, is subdued, the palm, with due restrictions, must be yielded to emetics. A few cases only, can be cut short by any means, but they are rarely brought soon enough before the notice of the practitioner. Emetics should be refrained from, at least without premising the lancet, in plethoric persons, when the head is implicated, and where there is much excitement. Twenty grains of ipecacuanha, with one of tartarized antimony, and ten grains each of starch and sugar, according to Hartmann's formula, otherwise, a scruple of the sulphate of zinc, will speedily suffice. If the stomach be empty, a draught of chamomile tea, or tepid water, will distend the viscus, and render vomiting less fatiguing. The supposed connexion between fever and gastritis has caused many to be chary in the administration of emetics; but I never witnessed any bad effects from them. It would not be easy to explain their precise action on the animal economy, or the nature of the shock by which they prove useful. The change, says Andral, which followed vomiting in the majority of the cases of the third series, was so prompt and so decided, that it seems impossible to deny it a great share in the recovery. He mentions a hotel-keeper, in particular, who laboured under bilious fever, with intense headache and evening exacerbations. The man was bled, and leeches applied to the anus. On the sixth day, being much worse, the patient stated that he had had a similar attack, from which he was not freed till vomited. Two grains of tartar emetic were accordingly given, which were followed by the evacuation of bile, and the prompt disappearance of the disease. Pringle, Stoll, Friend, Huxham, Heber-

den, Cheyne, Lind, and Cullen, all thought highly of emetics; and Ozanam would prescribe them in the majority of cases. Broussais and his adherents, however, discard them altogether: Boisseau charges those who employ them with imprudence. Rogan found them useful; but discontinued them, simply because few were brought into hospital early enough to warrant a hope of cutting the fever short by any means. On the whole, emetics, if judiciously and promptly employed, may prove useful, but, otherwise, the reverse.

Many of Cullen's maxims are excellent, but the treatment has improved since his time. In no particular is this more observable than with regard to purgatives, in the employment of which, the Cullenian school was not sufficiently decided. Hamilton, probably, attached too much importance to these valuable remedies; his rules, however, are useful and practical. Purgatives, he observes, are given in typhus, to evacuate the bowels; and, with this limitation, may be exhibited from the commencement to the close. They relieve the first symptoms, and prevent the accession of more formidable ones: in the advanced periods, great danger is often mitigated by evacuating the bowels. Finally, convalescence is promoted and confirmed, and relapse averted, by a regular state of the body. Aperients, in fact, are given with various objects: they lower general excitement, cool the patient, free the bowels, and relieve the heat; for, as Baglivi has it, *alvus stricta, semper exacerbat morbis capitis*. The indications vary with the period and complications of the disease; for, while some are costive, others labour under diarrhœa. As Ryan, in Barker and Cheyne's Account, observes, persons lying torpid and unable to reply, after free purgation, have become comparatively strong; yet, as Barry, in the same collection, relates, there are some in whom enemata, even, produce syncope. In truth, with delicate females and children, men broken down by disease, corporeal or intellectual exertion, way-worn travellers, exhausted soldiers, and others, purgatives must be employed with reserve. It is no bad plan in such cases, and in the advanced stages, to combine a little capsicum, cinnamon, or ginger: the tincture of jalap in porter, or the wine of aloes, answers, at times, very well. Huxham's enema, composed of salt, sugar, and milk, is often useful. In general, however, this extreme caution is not called for: patients require purging, and the aperient, as Tweedie remarks, is less important than its due regulation. Calomel and rhubarb, or calomel and jalap, in regulated doses, with a proportion of antimonial, followed by scema and salts, or the like, will clear out the bowels. The tartrate of antimony, indeed, in cases of bronchial affection, or febrile excitement, is a desirable addition. Cream of tartar is a favourite with some, as castor oil is with others; indeed, any mild saline or vegetable aperient will suffice. Venesection, as it promotes vomiting, when emetics are given, has the same influence over the bowels as regards purgatives. Welsh remarks, there was often hardly time to tie up the arm, so urgent was the call to stool. The duration and amount of the excitement, the tendency to constipation or the reverse, the patient's strength, and the collateral remedies, will regulate the exhibition of purgatives. Boisseau, Begin, and Roche, would pass an interdiction on them as incompatible with gastro-enteritis; it is right, however, to be cautious in the advanced stages, as well as in abdominal complications. Purgatives, if in the day time, should be

given early; and, if at night, it should be with the intention of not acting till morning.

No incumbrance, such as carpets, curtains, and lumbering furniture, should remain in the patient's chamber. The stuffing, if any, should be taken from the chimney. A mattress, in warm weather, without under-blanket, is preferable to feathers. Warmth and ventilation must be regulated with regard to the welfare of the patient: it would be injudicious to have open doors and windows in winter, as to have them closed during the heats of summer. Air may, and should be renewed, but so as not to risk pneumonia or bronchitis. In hospitals, if not in private houses, vents in the ceiling or walls might communicate with *fourneaux d'appel*, or, as an ingenious friend suggests, with apertures in the roof. The feces and urine should be received in vessels half filled with water, and cleanliness enforced in every way. Bed, and body linen must be duly shifted, and every soil removed. Hospital patients, as Stoker and Elliotson remark, are often so dirty, that we prescribe soap and water before we prescribe any thing else. When debility ensues, evacuations should be passed lying, the edges of the pan, which, with heavy persons, should be metal, being covered with wash-leather. Bran, or air pillows, else the distended gullets of oxen, obviate pressure; while the parts may be bathed with camphorated lotions, black wash, or a weak solution of the nitrate of silver. Should mortification unhappily ensue, yeast or carrot poultices, with pledgets dipped in chlorine water, are among the best applications; after the slough falls out, common dressings suffice. When diarrhœa and debility are concomitants, the condition of the sufferer often becomes apparently desperate, and involves great zeal and attention. Here we should be particular in keeping up the temperature of the extremities. In other respects, folded linen, soft and warm, with layers of oiled cotton or silk, should be placed beneath the patient: the mouth, lips, nostrils, and teeth, freed from adherent sordes, and every precaution tending to avert the dissolution which impends, made use of.

Cold or tepid affusions and aspersions promote cleanliness, and lower morbid heat. The safest time for such, observes Currie, is when the exacerbation is at its height, when there is no sense of chilliness, when the heat is above natural, and when there is no general or profuse perspiration. Jackson directs water to be taken fresh from the spring or open sea, and having premised a thorough cleansing, poured over the head and shoulders. In fever of violent excitement, in warm or temperate climates, and when decided local complication is absent, we may resort to cold affusion with propriety; but, in the ordinary form of these countries, cold or tepid aspersions are more easily managed, and productive of equal or greater benefit. Fever, indeed, is rarely cut short by aspersions of any kind; and Frank the son, has seen the supervention of pneumonia from their careless employment. Warm baths are considered advisable by some; but Frank and Omodei both discountenance them, as productive of needless exhaustion and agitation. I would resort to them after convalescence as a means of cleanliness.

Diaphoretics, once so general, have fallen into disuse. Some patients, indeed, are drenched with fetid moisture, while others are without perspiration. We cannot well force a discharge, and if we could, I fear it would not answer our purpose. When the disease subsides, a salutary

sweat will break out, and not till then. Wine is truly useful in the advanced stages, but its indiscriminate administration is productive of injury. When there are strong vascular action, observes Black, animal heat above the natural standard, much affection of the sensorium, a pulse increasing in frequency, local congestion, and a dry, black, or brown tongue, wine is inadmissible. It is expedient, on the contrary, when there are weak vascular action, a tolerably free sensorium, animal heat not in excess, open bowels and skin, remission of fever, moist clean tongue, and exhaustion. If the tongue, says Armstrong, become dry and parched, wine does harm; if moist, good: if the skin become hot and parched, it does harm; if moist, good: if the pulse be rendered quicker, it does harm; if slower, good: if the breathing become hurried, it does harm; if deep and slow, good: if the patient become restless, it does harm; if tranquil, good. When a person in fever has been going on favourably, it sometimes happens, says Tweedie, that the pulse becomes soft and compressible, concurrently with feelings of exhaustion and desire for wine; in which case, there need be little hesitation in allowing six or eight ounces in the twenty-four hours. Sometimes, indeed, we have to stimulate with one hand, while we leech with the other; to reduce local inflammation, while we support the general strength. Grounds for and against the exhibition of stimuli are often so equally balanced, that we cannot know, short of cautious trials, what is to be done. We may employ and have to give them up, yet afterwards find them singularly useful. Even in the same institution, some patients will bear wine throughout, while others only require it during convalescence. In a few cases, opium alone, or combined with ipecacuanha or camphor, allays nervous excitement, combats spasmodic action and delirium from exhaustion; but, for the most part, wine is preferable, not only to opium, but to arnica, bark, camphor, yeast, ammonia, and musk. Fevers from contagion, unless I err, usually demand greater stimulation, as also does the complaint when it occurs in the broken-down and exhausted. Elderly persons require wine more frequently than the young, and drunkards, than those of sober and temperate habits. In an epidemic at Germer-sheim, Peter Frank administered brandy to a woman well on in years, and who could take no medicine. The grateful drink had scarcely touched her lips, when she opened her eyes, though previously in a state of stupor, adding, Ah! this doctor knows my constitution; and in due time, shook off the disease. It is a universal remark, that the poor recover with fewer stimuli, and derive greater advantage from them, than the rich. Truly, says Burserius, commenting on a form of fever recorded by Sims of Tyrone, the poor recover so much the more readily as they are not overwhelmed with a multitude of remedies. The opulent are commonly so replete and habituated to excess, as to render stimuli less available in disease. Even of those not accustomed to wine, many will bear a surprising allowance. A clergyman of most temperate habits, drank within eight and forty hours, three bottles of port and sherry, and half that quantity of brandy. Whenever the wine was intermitted, a tendency to lipothymia ensued; the pulse was excessively quick and small, and he even, the only instance I ever knew, had to be occasionally wakened by my colleague, who sat up watching him, to receive his allowance; a precaution without which, I am convinced, he would have perished in his sleep. Sherry, port, madeira, sometimes claret, are the

wines required, and they should be good of their kind; brandy is rarely admissible. The high prices of these wines restrict their utility among the poor. The quantity of stimulus is variable; one man will be relieved by half a bottle, while another will require twice that quantity, if not more, in the twenty-four hours. Women and children commonly demand less than men. In fine, when the pulse fills and grows steady, when the intellect brightens, when the strength increases, the countenance improves, and the sleep is undisturbed, wine is of service; if, however, the pulse grow quick and hard, the tongue dry, and the skin hot, this liquor must be discontinued. The abuse of wine, as Hufeland remarks, does not justify its rejection; for we cannot without impropriety, neglect any means of which experience demonstrates the efficacy.

In the early stages, patients require no food, or rarely so; water is commonly preferred; but whey, toast or barley water, bread tea, lemonade, tamarind or currant infusion, are good available drinks. Afterwards, thin gruel, panada, and fruit, form a light nourishment; but rice-cream, milk, jelly, chicken-broth or beef-tea, will often be advisable. As convalescence approaches, the allowance may be very cautiously augmented. When meat is first administered, it must be in very small quantities, minced up with bread or potato. It is well, during the early stages, to permit the patient to sit up a little, while his bed is making, since it cools and refreshes; but as the disease advances, this becomes impracticable. During great exhaustion, indeed, the erect posture is not unattended with danger, hence the natural wants must be satisfied in, not out of bed; afterwards, the convalescent wrapped in a blanket, may occupy an easy chair, morning and evening. Exposure to the open air should be very gradual, and the occupations of daily life slowly resumed. A few remain in a childish state, which returning strength dissipates. Should the appetite flag, the infusion of gentian or quassia, or a little quinine, will be advisable.

In fever attended with complication, we must see to the condition of the suffering organ. A sub-inflammatory affection of the brain is capable, if not attended to, of rapidly extinguishing life; and in the opulent, especially, often proves destructive. In truth, people determine the fatality or the reverse of such dangerous maladies, by their previous habits, and expect medicine to secure the immunity which must result from temperance. I need not say that I do not adopt those views which go to identify fever with cerebral inflammation. In other respects, there is no position more beset with difficulties than that in which a practitioner, who has to treat fever with cerebral complication, often finds himself. The disease may be of some duration, the constitution of the worst description, the lesion structural or merely functional. Authors abound with instances of the happy effects of depletion proportioned to the strength of the patient and violence of the disease. Too often, indeed, as I have had occasion to witness, the omission of this remedy or its tardy employment, proves the cause of death. Some practitioners prefer arteriotomy to venesection; but, to whichever we resort, we may take away from twelve to twenty, and in violent cases, even thirty ounces of blood. The precaution advised by Hall, of watching for delirium, the patient being placed in a sitting posture, with the eyes directed towards the ceiling, is very good; a few, however, contrary to this author's averment, will bear a greater loss and with more advantage,

at a second, than a first emission. Every thing else alike, tolerance of blood-letting is in the direct ratio of the violence of inflammation. The practitioner must keep his finger on the pulse, watch the varying expression of the countenance, and inquire into the feelings of the patient. The blood must be kept for inspection. Leeches, a dozen or so, to each temple, will often obviate a second bleeding. It has been a question how many days after cerebral lesion commences, venesection is to be resorted to; the symptoms, not the time, must determine this. Cephalalgia may remain after other local symptoms, and as Sydenham and Acerbi remark, is only to be dissipated by time. As regards cold applications, some advise the dash, the head being held over a basin or tub, and water poured from a height till the temperature be thoroughly reduced; others, as Foderé, prefer simple affusion. In severe cases, the dash is advisable, but so as to guard against undue reaction; in ordinary ones, lotions of spirits, or vinegar and water, will suffice. Larrey employed pounded ice. These applications must not be pushed too far: nature demands some degree of vital energy in her struggles with disease, and it will not do to extinguish one at the expense of the other. Blisters are to be deprecated during active inflammation; and I have had occasion to regret their premature application. Venesection premised, however, they may be placed on the nape. On the continent, much importance is attached to derivatives; and for this purpose, blisters, sinapisms, and ammonia are resorted to. The mother of a young physician, says Rostan, was dying of meningeal inflammation; the skin was cold, the pulse gone, and the face cadaverous. In despair, the young man poured boiling water on the inner surface of the thighs, producing not only phlyctena, but deep eschars; after which, to his infinite satisfaction, a favourable crisis ensued. Mackintosh records an instance equally striking, and not less successful, of the efficacy of this desperate remedy.

Fomentations to the legs and feet will often appease cephalalgia and general inquietude; thereby inducing sleep and rest. No judicious practitioner can overlook purgatives; though not solely to be trusted to, they relieve stupor and oppression. I do not regard mercury with the confidence which some entertain; yet, when bleeding, blistering, and due purgation precede, we may rub in the stronger ointment, and employ it as a dressing for blisters. Calomel, also, may be administered, combined, if necessary, with a little opium or rhubarb. It is difficult to affect the mouth in fever; yet, if ptyalism be not induced, we remain in doubt as to the action of the mineral.

It is necessary to discriminate between inflammation and those conditions arising from anemia, or unarterialized blood, which simulate it. The physician will not be rash in his diagnosis; and, before he decide, will avail himself of all the light which experience sheds. I felt considerable embarrassment in a case of this kind, by the occurrence and persistence of aphonia for eight and forty hours. It is in the conditions referred to, that opium and wine, with judicious nourishment, prove so beneficial. Here again, by means of blisters and sinapisms, we endeavour to rouse the dormant sensibility. Torpor of the surface circumscribes the employment of these remedies, which, if left on too long, are apt to induce sloughing. At such times, the bladder must be attended to; warm applications generally supersede the necessity of the

catheter. Speaking of inflammatory and gastric fevers, Boisseau remarks, that few medical men, now-a-days, deny the origin of fever from irritation. It is not so, however; the treatment, consequently, reposes on a more uncertain basis. As regards the abdomen, though follicular alteration, ulceration, and other lesions ensue, there is, strictly speaking, no inflammation. The diagnosis, indeed, is not so certain as we could wish; constitutional indications, therefore, must be resorted to. In a case of fever, now in my hands, I infer the existence of intestinal ulceration from the absence of all other coincident disease, and the continuance of a quick pulse and hot surface, after the fever, in other respects, has had time to subside. If there be much prostration, let us support the strength, exhibit wine and cordials with moderate nutriment, and, in the event of diarrhœa, opium. Ipecacuanha, the acetate of lead, or mercury with chalk, may be given in suspected intestinal sloughing, but, I fear, with little effect. Should perforation unhappily ensue, we may, with Stokes, in order to allay pain, avert inflammation, and abate the peristaltic action, give the tincture or the watery extract of opium, in large and frequent doses. I had the misfortune, not long since, to witness this disastrous occurrence, and to see the patient, after horrible torments, perish before my face. Meteorism, to any serious extent, is mainly owing to the attendant prostration; the treatment, therefore, turns on supporting the vital powers, and with this intent, turpentine, in small doses, as recommended by Graves, and other obvious remedies, may be employed. Internal cicatrization is a gradual process; and it is only after an uncertain and precarious interval, that the patient regains health and strength.

The treatment of thoracic affections varies with the age and strength of the patient, and the severity of the complication. At times, the most decided antiphlogistics are required; at others, they must be alternated with tonics and stimuli. The least cough, dyspnœa, or darkening of the countenance, must be the signal to the practitioner to apply his stethoscope. Bronchitis, notably, is less under the control of the lancet, than pneumonia or pleuritis, and less frequently demands its employment. If expectoration have set in, we must be chary in expending the patient's strength, which will all be required to bring him through the struggle. When fortunate enough to meet the incipient complication, we must subdue its violence by means energetic as the bodily powers of the sufferer, and the diminished tolerance of blood-letting will permit. From ten to twenty ounces may be taken from adults, and from young subjects in proportion. Leeches should not go on separately, but together; and the chest kept covered while they perform their part. Children need never see these, to them, disgusting objects. They are less necessary, however, when sufficient blood-letting, counter-irritation, and tartarized antimony have been made use of. In slight cases, leeches to the upper part of the sternum, provided there be no objection to their employment, are sufficient. Indeed, counter-irritation itself, must not be needlessly resorted to. If dyspnœa and sympathetic irritation keep up, it may be a question whether we shall bleed afresh; one sufficiently copious detraction from a large orifice, is preferable to repeated smaller ones. Should the pulse become small and thrilling, without the resolution of the complaint, we must abandon bleeding, and give the tartrate of antimony,

every hour or two, in quarter or half grain doses, in an effervescent or aromatic mixture. Any slight sickness and vomiting generally wear off, so that more might be given; if it run off by the bowels, a little tincture of hops, henbane, or opium, may be required. Opium, from its tendency to lock up the bowels, and affect the head, is less admissible in febrile, than idiopathic inflammation; nevertheless, if irritability, exhaustion, and restlessness ensue, this substance is indicated. The form and intensity of the affection, must regulate what we have to do, and the manner in which we do it. When pectoral complications are allied with extreme prostration, we must administer stimuli, and stimulating expectorants, wine, camphor, and ammonia. Stimuli, indeed, in such cases, will constitute our best expectorants; for, we must not forget, that the patient's life is our first concern—disease the next. When the bronchial tubes become loaded, the livor and dyspnœa display the embarrassment of the circulation. At these times, a smart emetic, so as to avoid ineffective retching, will sometimes free the lungs, and give a beneficial fillip to the constitution. If the vital powers, however, do not keep up, or cannot be supported, even this will fail. Should the other great viscera, simultaneously or in succession, be affected, we must act accordingly. In the case of a young medical man whom I attended, the pain and fulness in the head were so considerable, as to demand copious leeching; there were, also, great dyspnœa, pain in the chest, and hemoptysis; lastly, epigastric tenderness and diarrhœa; so that when he got rid of his fever, he was sufficiently reduced. Parotitis is only occasional; but, unhappily, may ensue under conditions, either not amenable to ordinary treatment, or perhaps altogether precluding it.

Independent of regular treatment, remedies have been employed in fever, which, as they are not based on any direct indication, may be termed empirical. We may fail to understand the exact operation of a remedy, but, if observation demonstrate its efficacy, we must admit the fact, however insusceptible of explanation. It has been urged, that empirical procedures spare the trouble of examining into, and prescribing for individual cases; a paralogism, however, that is easily refuted, since empiricism itself, is not to be upheld without the aid of reason and experience. The expectant method, inasmuch as every thing is confessedly left to nature, may be termed the zero of all treatment. Few things probably would tend more to mortify our vanity than a knowledge, could it be obtained, of the instances in which nature, not art, removes the disease. I cannot, however, agree with Dr. William Brown, that the mortality of fever is pretty much the same under every line of treatment. For all this, he speaks of the wonderful success that followed excessive vomiting and purging, in the hands of a Mr. Warren, who, in 1779, served in the channel-fleet on board the *Namur*. Burnes, and a few others, would mercurialize; yet people under salivation will contract fever, and though it be induced, as Barry has shewn, may die. Graves recommends opium and antimony when there is great sinking; he also unites with Copland, in employing the chloride of soda, as Reid does that of lime. I would, myself, prefer wine under these circumstances; and can see little analogy between the putro-*adynamia* of fever and animal decomposition, that the same substance should rectify a vital, as it does a chemical process.

the same substance should rectify a vital, as it does a chemical process. Yeast was, for a time, in vogue; but has gone into disuse. Stevens would supply saline ingredients to the blood: it is only by supporting the vital powers, however, that we can hope to rectify the alleged deficiency. Williams dwells on the utility of daily enemata of barley-water and syrup of poppies, without regard to particulars: this gentleman, however, speaks of a combination of fever with cholera, in which he lost one in four or five, and in which this treatment he admits was not successful.

As regards the prophylaxis, our knowledge exceeds our practice. In fact, the community have neither information nor sympathy adequate to prompt the proper steps. Medical men may recommend measures, but cannot ensure their adoption. Were the zeal which prevails during general sickness, sufficiently active at other times, the annual mortality would be greatly lessened, and epidemics, probably, prevented altogether. Fever does not spread under ordinary circumstances; but should there be a succession of bad harvests, with damp, cold, and destitution, its progress is rapid and frightful. During the Irish epidemics, those who had steady employment escaped, a fact which speaks volumes. As points of contact multiply with the extension of the disease, there is no cessation of its ravages, till the majority of the susceptible be affected, or till a more favourable period arrive. When fever spreads, it is among the poor, the destitute, and the toil-worn: it is from them that it uniformly originates; for who ever heard of an epidemic springing from, or confined to, the rich? We should sedulously avail ourselves, therefore, of all the expedients which ingenuity and philanthropy have devised to better the condition of the poor, and to prevent the origin and dissemination of the complaint. Provident societies should be encouraged, and useful information diffused; while a code of health, intelligibly and concisely drawn up, ought to be circulated. A sanatory police might be made the instrument of much good. Towns should be drained, cleanliness enforced, ventilation ensured, and water liberally supplied. Baths, warm and cold, should be established on a large accessible scale. Drunkenness, by every direct and indirect means, should be repressed; and, as one of these, the duties might be lowered on wines and groceries, and increased on raw spirits. The cheap, and comparatively wholesome stimulus of the one, might replace, with every advantage, the pernicious excitement of the other. Many changes, however, await the constitution of society, before epidemics, and their deplorable consequences, shall be averted. As regards hospitals, washing-machines, with chlorine leys, would lessen the risk incurred by the domestics. The patient ought to receive a tepid bath on entering and quitting the wards, his linen should be scrupulously clean, and his woollen garments exposed for some time to a temperature of 300 degrees. He should not, if possible, be discharged in bad or rainy weather, and before his strength is well recruited by food and wine. As to personal precautions, we need not inhale too closely emanations from the sick, stand much on the leeward side, or swallow saliva which accumulates in the mouth. It is undesirable to visit fasting, late at night, or to remain needlessly long. With these, the risk in clean, well-ventilated hospitals, is very small; in private abodes, still less.

II—INTERMITTENT FEVER.

THIS disease is characterized by accessions, consisting of a cold, warm, and sweating stage, with free intervals. It begins with yawning, headache, shivering, thirst and anorexia. The chill is peculiarly oppressive; water seems to trickle down the shoulders, rings fall off the finger, and the clothes feel too large for the limbs. The teeth chatter, pains afflict the loins and back, while neither the sun's rays, the heat of a fire, nor any amount of clothing, creates a sense of warmth. Almost all capacity for mental or bodily exertion is suspended. In some instances, as Mosely and I myself, have observed, delirium is witnessed, also vomiting, by which last the hot stage is accelerated. In severe cases, the respiration and pulse are affected, the lips and surface become bluish and livid, while running sores and the breasts of nurses, it is said, dry up. The urine is clear and limpid, but variable in quantity. From half an hour to an hour, is the usual duration of the cold stage, but it may continue much longer; and individuals have even been known to expire before reaction ensued. During the warm stage, the patient is distressed with heat, as he was before with cold. Hence he thrusts out his arms and throws off the clothes, unless, warned by experience, he try to induce sweating. The headache continues, the heart beats with violence, the pulse becomes hard and full; while, at the same time, the eyes glisten, the skin glows, and the urine becomes sparing and high-coloured. After reaction has lasted two or three hours, resolution follows; at first, a little moisture, speedily extending to the forehead and breast, bedews the flexures of the joints, and soon a torrent of sweat affords a relief that cannot be described. Now, the urine, if at all, deposits a brick-red sediment; languor and exhaustion creep over the frame, and the patient sleeps, to awaken with the desires and appetites of health. If the disease, however, prove severe and prolonged, there is indisposition during the apyrexia, as created and kept up by functional debility and superinduced organic changes. About this time, an herpetic eruption, which some term *hydroa febrilis*, perhaps breaks out about the lips.

A great variety of intermittents, probably fifty or more, have been described; the majority, however, are referable to a few leading type. When the complaint ensues daily, the term quotidian is applied; if one day intervene, it is a tertian; if two, a quartan. When the diurnal accession corresponds on alternate days, it gets the name of a double tertian; a duplicate tertian is when there are two attacks every third day, but only a single intermediate one: Tulpius even speaks of a quadruple tertian with two daily paroxysms. In the same way, there may be double, duplicate, triple, and triplicate quartans—double, and even triple quotidians. A quintan takes place after an interval of four days; but Joseph Frank alleges that it has been confounded with other types. Intermittents with apyrexial periods of from six to fourteen days, and even whole months, are recorded. Ephemeral fever, so named, is, doubtless, nothing but occasional intermittent. The duration and period of the attack are uncertain; but it is of common repute, that quotidian commences in the morning, tertian at noon, and quartan in the evening. Quotidian is excessively rare in these countries; in other

respects, tertian and quotidian affect the spring, and quartan the fall. The term sub-continued or sub-intrant, has been applied, in marshy countries, to obstinate forms of the disease in which the intervals are not wholly free from fever. The fits may also be in advance or in arrear of the usual period. On one occasion, I had tertian for six weeks; the fits commenced at eleven, and then gradually came only to appear late in the afternoon.

In some regions, intermittent fever assumes a peculiarly severe aspect, to which the term pernicious, has been applied. It is not, as might be supposed, confined to summer and autumn, but, as Mathæis at Rome, and Joseph Frank at Vienna, have shewn, may also be witnessed in the spring. Even during the intervals of this violent malady, the patient is affected with languor, thirst, debility, and a small vibrating pulse. This last, Burserius notes, becomes more frequent towards the close. Pernicious intermittents, Joseph Frank observes, usually wear the sub-continued, quotidian, or tertian aspect. At Bona and Algiers, two thirds of the cases observed by Maillot, were quotidians. In fact, pernicious intermittent is the link between the ordinary intermittent of temperate climates, and the destructive remittent of the tropics. It is singular, that in double tertian, the paroxysm of one day may belong to a mild, and that of the next, to a pernicious fever. As this complaint sometimes wears a form not its own, the term larvated or masked, has been applied. Toothache, neuralgia, and even hysteria, paralysis, and apoplexy, so termed, have been traced to malaria, and removed by appropriate remedies; hence it is, that we are to suspect any periodic disorder which occurs in a marshy locality. As for rheumatic, dysenteric, cardiac, pulmonic, algid, lethargic, comatose, spasmodic, scorbutic, arthritic, catarrhal, gastric, and other forms of intermittent, I must refer to the writings of Trnka, Torti, Werlhof, Cassimir Medicus, Storek, Burserius, Bailly, Alibert, and M'Culloch.

The morbid anatomy of intermittent fever, may be said to vary in some measure with the pathological views of those who prosecute the inquiry. As the disease in its milder forms, at least, is rarely fatal, opportunities for dissection, in these climates, are rare. Even when they do occur, the subject is oftener exhausted by concomitant lesions, or, at any rate, sequela, than by the violence of the complaint itself. Persons may labour under collateral, inflammatory, or other diseases, along with intermittent; but lesions referable to the former, should not be ascribed to the latter. The inhabitants of aguish countries, certain districts of Holland—Walcheren for example—display a pale, waxen aspect, and are apt to labour under glandular enlargements. The erectile tissue of the spleen, renders it liable to frequent and severe congestions, so as, eventually, to induce hypertrophy, and even softening. Indeed, the latter has taken place to such an extent, that rupture, effusion, and peritonitis, as Bailly and others record, have been known to ensue. Hypertrophy, sometimes termed ague-cake, may commence with the fourth or fifth accession; nor is it material, as Piorry observes, to its production, what the type of the disorder is. Indeed, in some instances, the enlargement is so considerable, as actually to affect respiration, and simulate disease of the heart. Next to the spleen, the liver is more or less hypertrophied, and otherwise altered in colour and consistence. It is not easy, however, to ascertain how far these may be

immediately dependent on the disorder. The mesenteric glands are often swollen. As to the brain, notwithstanding the cephalalgia, and even coma, with which intermittents are more or less complicated, it is, in most cases, exempt from alteration. *Caput insons reperitur*, says Senac, *licet nonnunquam gravissimis torqueatur doloribus*. Bailly avers injection of the arachnoid, and serum in the ventricles. I should prefer with Roche, however, to explain the post-mortem results by congestion, not inflammation.

As to the pathology of intermittents, Broussais would have us to believe in an intermittent irritation; Reil, that the disease was connected with, and caused by concurrent alterations in the universe; and Bailly, that there was some inscrutable relation with the nightly change from the erect, to the horizontal posture. Brachet bathed seven times, at midnight, in the river Loire, and was surprised after discontinuing his immersions, to find that a shivering fit, followed by the usual reaction, nightly ensued, for about a week afterwards. Each fit of ague is a kind of epitome of continued fever; but alternations, which in the latter require days and weeks, are completed, in the former, within a few hours. If we except the influence, so far as it goes, of habit, we are unaware of the sources of the periodicity of the complaint. Pathologists who assign a local origin to every disease, have been greatly puzzled with that under consideration: since the lesions are evidently results not precurors. Hence the untenable attempts to seat it in the nervous, the arterial, or the capillary system. At Rome and Bona, profound coma sometimes supervenes on the second or third attack; and it may be that the disease commences in this form. Hence Maillot would infer irritation and congestion of the cerebro-spinal axis, an hypothesis which it seems impossible to prove. The passing of a bougie sometimes produces a shivering fit, which, while it resembles, throws no light on intermittent fever. The distinction between simple and pernicious intermittents, is, obviously, in degree, not in kind. Many anomalies, such as the cold, succeeding, in place of preceding the hot or sweating stage, the absence of one or more stages, confinement of the disorder to a part of the body, as the arm, leg, or abdomen, as well as various forms of the larvated or masked disease, have been described, but cannot well be explained. In other respects, tertian, quartan, and quotidian, are the commonest aspects, and those to which all others, as irregular or exceptional, are to be referred.

As to the proximate cause of intermittent fever, we can know nothing: but, that the external exciting cause resides in a peculiar poison generated by a certain amount and continuance of heat and moisture, there can be no doubt. Lind, Pringle, Rush, Lancisi, in fine, all writers, are here in accordance. There are seeming exceptions, as when ague occurs amid sandy hills, rocky plains, or other dry elevated situations; but in such cases, there is probably some unobserved local source, or the poisonous miasm is wafted from a distance. Ague, for example, is never seen in the sandy deserts of Asia, Africa, or South America. Water, indeed, often trickles along the face of mountains, and water-courses may retain moisture below, though dry and arid on the surface. The latter were often productive of disease among our troops in the Peninsula. Many parts of Italy, however, independent of the Maremma and Pontino marshes, some of them singularly fertile, prove copious

sources of destructive malaria, but in a manner which has yet to be detected. It is interesting to know that stench, the most offensive, from other sources, are not productive of periodic fever, or even inconsistent with health. Chisholm observes that it would be at variance with providence, were animal putrefaction to cause disease. Possibly, the fearful results consequent on vegetable decomposition, are intended as incentives to the culture of the soil ; but appeals to final causes, in this case at least, must be made with reserve.

In temperate climates, tertians and quartans, in warm ones, quotidians verging on remittents, are most frequent. Tertians, and other mild periodics, may and do occur in mountainous situations and elevated table-land between the tropics. In other respects, the same country, according to the period of the year and other causes, may, at one time, present mild, at another, malignant intermittents. The south of Europe, the north of Africa, the Americas, the East and West Indies, as well as different parts of France, Holland, and the Netherlands, are subject to periodic disease. It is not, perhaps, remarkable, that intermittents should be nearly wanting in Australia, the reason for which, I take it, lies in the absence of a deciduous vegetation ; but it is very strange, according to writers in the naval medical statistics, that extensive districts in South America, abounding with the usual sources, so esteemed, of malaria, should yet display little or no periodic disease, while regions in the same parallel in Africa, nother hotter perhaps, nor abounding with more exuberant vegetation, are proverbial for its frequency and severity. It would be most desirable if the source of this apparent exception to the ordinary laws of malaria, could be rendered manifest. I witnessed considerable frequency of intermittents along the great American lakes, during a tour in those regions in 1826 ; a fact to which Mann, in his medical sketches, also testifies. Agricultural operations have, in many places, rendered these complaints less common, although the first breaking-up of the soil be rather an insalubrious process. It is for this reason perhaps, that the Indians are so much freer from paludal fevers than the whites. Bene the younger, of Pest, dwells on the frequency of intermittents, sometimes pernicious, with different alleged complications, in the southern parts of Hungary, Wallachia, and Bessarabia, and which bear the title of the Dacian hemitritæus.

Swamps are not necessarily offensive to the eye, as they are dangerous to health : I have witnessed scenes of resplendent beauty within the tropics, which, to Europeans at least, were fertile sources of desolation and death. I have enumerated the leading malarious localities, but it would be easy, by going into details, to swell the list. England, excepting Essex, Lincolnshire, and a few other districts, can hardly be considered a malarious region ; Ireland, not at all so. Yet epidemics, it appears, were once frequent and destructive ; and even in London, it is alleged, that in 1558, the living were hardly able to bury the dead ; while Sydenham affirms that in that city, from 1661 to 1665, it was the most fatal disease. Certain northern latitudes are not subject to intermittents, although the thermometer, for a brief period, may rise to a great height. Its average elevation, ten or twenty degrees, however, would probably convert these countries into dens of pestilence. As to the nature and constitution of marsh-miasms, it is impossible to say,

since the poison evades both detection and analysis; air from localities the most insalubrious, being equally pure with that from places the reverse. There must, however, be some addition, for the appreciation of which, our gross mechanical and chemical re-agents do not suffice. Who indeed, would think of thus detecting the poison of measles or small-pox; yet, doubtless, it pervades the atmosphere, and even there, may be acted upon or destroyed. In fine, we can only add, as Puchelt and others affirm, that heat and moisture will not create malaria, unless vegetable remains be present.

It is remarkable, that some of the worst examples of malarious influence are ascribable, by commission or omission, to human agency. Thus, the rice-grounds of Lombardy, Carolina, and the East, afford examples of the one—the Pontine marshes, and those styled the *Marremma*, of the other. The practice of burning the superficial vegetation in summer, and imperfect banking-out of the sea or large rivers, lead to malarious spots. A productive, but very unhealthy process of agriculture, by alternately converting the soil into fields and fish-ponds, prevails in the department of *Ain* in France. Hence it is, says *Foderé*, that whole districts consist of a series of marshy pools, amidst which the miserable inhabitants perish so fast, that the country, were it not for continual accessions, would become a desert. Tanks for steeping hemp are so decidedly productive of intermittents, in France at least, that, as *Brachet* observes, one may cause an epidemic in the most healthy village, by establishing them in the vicinity.

It is important to know, that malaria requires a close, and commonly, somewhat prolonged contact, in order to exercise its peculiar virulence; and it is equally so, that the mode of living, the habits, comforts, degree of exposure, and, even age, are circumstances that modify miasmatic influence. *Russell* gives a curious instance of the fœtus in utero being affected with tertian. Mother and child shook on alternate days: both were cured by bark; the child sooner than the mother. It was noticed at *Walcheren*, and elsewhere, that officers were less subject than privates; those who slept in elevated apartments, than others on the ground floor; and those in-doors, than persons exposed out. Men in the fields, in *Lincolnshire* and elsewhere, often contract ague, when the females at home remain free. Night-exposure, however, is a fatal source of disease, more especially when preceded by exhaustion, fatigue, depressing passions, or excess. The risk is greatly increased by sleep: persons who cross the Pontine marshes, it is well known, are much less liable when they keep awake. In agueish countries, and in persons who have laboured under, or acquired a disposition to the disease, a slight cause, such as a blow, a fall, bad news, anger, intemperance, or atmospheric exposure, often serves to renew or produce it. Contagion and hereditary tendency have been absurdly alleged. Summer and autumn are the periods in which malaria attains its greatest virulence; while they are precisely those in which the constitution is least able to withstand it.

Pernicious intermittents, it is needless to insist, constitute the most dangerous form of the disease; and this, as the part which happens to be implicated, the brain, for example, is of importance in the economy. In *Rome*, *Sienna*, *Algiers*, and elsewhere, they are often fatal on the second or third insult; sometimes, indeed, on the first, as sudden

deaths from seeming apoplexy, convulsions, and other modes of attack during prevalent epidemics, would indicate. The intense cephalalgia, coma, and general severity, speak, during exacerbations, for themselves; as do the precordial oppression, agitation, and restlessness pending the apyrexia. In fact, the northern practitioner can hardly bring himself to believe, that, in a few short hours, the individual whom perchance, he sees talking, smiling, or eating, during the remission, shall be seized, on the next accession, with coma, stertor, and the rapid invasion of the last agony. Who does not know, says Acerbi, that the duration of pernicious intermittents is of the briefest. Repeated attacks, visceral disorganization, bodily exhaustion, mental depression, and excessive exposure, render seizures more deadly. Thus, the poor peasant, after cutting grain in the scorched Maremma, lying out a-nights, drenched with chilling dews, and living on coarse bread and water-melons, perishes on the spot, or reaches, if he do reach, his mountain home, but to languish out a sickly existence. Strangers are very liable, but, if of sound constitution, bear the treatment well. The seasoned are more exempt from acute attacks; but incur a gradual depravation of solids and fluids. Many of these remarks apply to quotidian, in which form pernicious intermittents, so termed, most commonly appear.

Tertian is the most frequent, as, in temperate climates, it is the most curable of the periodics. In some countries, as Spain, and many parts of England, it is hardly looked on as a disease. Its mean duration is six or eight hours; and, if uncomplicated, often terminates spontaneously, though hardly after the seventh accession, as the Father of medicine pretends. The hastening or retardation of the accessions is a ground of prognosis, in so far only as the disease is converted into a better or worse type. When tertian continues for some time, the attacks, up to a certain point, become progressively aggravated, after which they decline: *primo paroxysmi febriles mitiores, ut plurimum observantur, sed vires acquirunt eundo*, says Lieutaud; an observation, the truth of which I have verified in my own person. The condition of the spleen and liver must always be adverted to; for, as Klein remarks, *breves et securæ esse solent febres intermittentes in ευσπλαγχοις et contra*. Quartan, not to mention quintan, is the most obstinate, but least dangerous of the periodics. *Febre cartano n' a jamai fa suona campano*, says the Provençal proverb; to which may be added, from Celsus, *nam quartana neminem jugulat*. But, as Forestus observes, quartan, more especially in the pernicious form, is sometimes fatal; it may terminate, moreover, in scorbutus, dropsy, and other cachexies, and, at any rate, persist long years, if not a whole life. Bad treatment, and other causes, sometimes convert it into dangerous quotidian; but, if into tertian, the prognosis is good.

Intermittent fever has been combatted by a multitude of remedies of variable efficacy. It is fortunate that nature provides us with means against so frequent a malady, albeit their operation we are unable to explain. In ordinary types, little beyond quinine is required, which, as Elliotson remarks, will cure the complaint, complications notwithstanding. Nay, as Bailly states, it will even remove splenic enlargements; and Piorry has seen a change, in this respect, within four and twenty hours. The remedy, however, must be given in large

doses; and an instance, in which half an ounce was unintentionally taken, affords strong illustration of its innocuity. Four, six, or more grains, may be given every few hours, in any agreeable vehicle, according to the age of the patient, the inveteracy and severity of the disease. Should costiveness or diarrhoea subsist, it will be necessary to resort to appropriate measures, otherwise superfluous purgation is inadvisable. The yellow or common bark, also, answers very well in one or two drachm doses, as counselled by Fordyce. The advantage of being able to prescribe the quinine, disencumbered of inert woody matter, is considerable; since the latter is often rejected. In many instances, the inefficacy of the bark, and even of quinine, is to be ascribed to the practice of adulteration. Formerly, cinchona was prepared in different ways, as the wine, infusion, tincture; also, in the form of baths, enemata, or quilted round the waist. The powder, however, is better than any of them, and quinine is better than the powder. Quinine, or quina, has been administered after the endermic method; a small portion of cuticle on the inner surface of the arm, being removed by ammonia, the scalpel, or boiling water, a few grains, previously mixed with lard, may then be laid on. In every case, the medicine must be used during the intermissions, and for some time after, to obviate a return.

Independent of the foregoing, different means have been employed to avert relapse, or shorten the stages: one of these was an emetic. M'Grigor gave the sulphate of zinc in half drachm doses, during our campaigns in the Peninsula. Kellie bethought himself of trying a tourniquet, for a few minutes; one on each leg, or on the leg and arm of opposite sides, by which, it is alleged, the hot fit was promptly induced. Trotter gave forty or fifty drops of laudanum to the seamen of the fleet; Lind, also, employed this remedy with considerable success, but in smaller doses. It was said to superinduce perspiration, and shorten the complaint. Running, even, has been recommended, and I recollect trying it, but with no effect. It is, no doubt, very pleasant to get rid of ague in this prompt manner; but, perhaps, the safest and best procedure, on the whole, is to suffer the paroxysm to have its course, and then to remove the disorder by the usual legitimate remedies. Mackintosh, indeed, has proposed venesection in the cold stage, and found it not unsuccessful; but Torti, and, more recently, M'Culloch and Stokes, have known it to produce quotidians and duplicated attacks. *Hunc et venesectione nocet per se semper, prodest alias casu*, says Boerhaave; in fact, it is playing at double or quits. This perturbing remedy, in the weakly subjects of ague, is hardly to be thought of, any more than the cold-bath recommended by Giannini and others. The management of the different stages is purely palliative; during the cold, the patient, above all things, desires warmth, and, commonly, drink. When reaction ensues, he suffers himself to be muffled up, with a view to bring on sweating; at this time I have found a cut lime or lemon, applied to the forehead, very grateful. After the linen has become drenched with moisture, it should be cautiously pulled away, and that which is dry and warm, substituted. At this period, light soups, seasoned gruel, and, perhaps, a little wine, may often be given with advantage: it is better, however, not to be too officious.

Masked, sub-continued, pernicious intermittents, as they run a more rapid and dangerous course, demand proportionate energy. We have, in truth, little time for deliberation, since the patient frequently perishes by the fourth or fifth paroxysm. Torti, the first accession having come to a close, recommends the instant administration of cinchona; for which, later practitioners substitute scruple doses of quinine. Maillot's practice, in young and vigorous soldiers, recently arrived on the coast of Africa, was to abstract, once or oftener, twelve or fourteen ounces of blood, and apply leeches by the dozen to the head, chest, or stomach, respectively, as each might happen to prove the seat of congestion or simulated inflammation. He would then give quinine, twenty grains by the mouth, and thirty, in a small enema, by the rectum. Any thing approaching to cerebral congestion demands the speediest attention. Broussais, though carried away by his peculiar views, urged the necessity of prompt and decided treatment. Speaking of a fatal case, he says, suddenly the early symptoms returned, disquietude and uneasiness reached their climax, the respiration was convulsive, cough incessant, with extreme emaciation, and rapid decomposition of the features: the despairing patient lay constantly on the right side, the head and limbs bent down, as if dreading instant suffocation, his body tormented with racking pains, until a prolonged death-struggle put an end to such accumulated misery.

Whim, versatility, the cost or absence of good remedies, has led to many others, arsenic among the rest. It appears unquestionable, that the solution is adequate to the removal of ague, particularly in relapses, after the use of quinine; but the instances of its ill effects, furnished by Stahl, Donner, and Peter Frank, enjoin rigid caution in its administration. Fowler used to give it, ten drops at a time, twice or thrice a day, in some aromatic vehicle, alone, or combined with the bark: McCulloch, however, has found solid arsenic, to the extent of the tenth or eighth of a grain, advantageous. Like other anti-periodics, it must be continued some time after the accessions cease, so as to guard against relapse. Tartar emetic and opium are favourite, and, it is said, successful remedies with some. Corvisart treated and cured the majority of his agueish patients in La Charité, by means of tartar emetic and bleeding: his predecessors gave the same remedy with cinchona. Tannin and animal jelly, with different vegetable bitters, salicine at their head, have had their day. Annesley reports good effects from simple doses of calomel in India. It is difficult to account for the success of remedies having no common principle of action. May we suppose, that, by temporarily deranging the processes of life, they afford the latter an opportunity, for which nature ever strives, to recover their normal action.

Intermittents, it appears, are sometimes removed by mental impressions. The prince of Saxe-Wiemar experienced quotidian at mid-day, which resisted every mode of treatment. Hufeland, his physician, put the clock two hours forward, and the overjoyed patient, believing himself cured, became so in reality. Charms and secret nostrums have proved not altogether impotent: most have heard of Judge Holt and his ball. The fear of a tempest has checked an accession of ague; and a friend of mine recovered instantly on learning that his ship was on fire. Stokes mentions, that the fit often failed to ensue, when

patients were directed to be bled in their hearing. Pliny tells of a captain whom an engagement released; and Joseph Frank, of a soldier who was frightened into the disorder by one battle, and out of it by another. An attack has taken place when the patient anticipated the customary hour; thus, Riverius relates the case of a man, who, having gone out to ride, heard a steeple chime an hour more than it really was, whereupon, back came his ague on the spot.

The best means of preventing intermittents, so far as may be, is to shun the locality productive of them. British commanders, as for example, in Canada, often lose the services of their people, by ignorance of medical topography; a science which practitioners, even, do not study as they should. Probably, no influential person in Britain, notwithstanding prior occupation by the French, and Pringle's statements, knew any thing of Walcheren, or so many brave men would not have been sent to perish there. Proper drainage, culture of the soil, the planting of belts of trees, to intercept malaria, avoiding the formation of hurtful collections of water, as tanks, fish-ponds, rice-grounds, hemp or flax-pools, and the like, would be productive of great advantage. Habit, to a certain extent, lessens the liability to agueish complaints; but the constitution, as Blane observes, evinces the deterioration wrought by the paludal poison. Ague, latterly, has become somewhat more frequent in London, owing, it is alleged, to the altered mode of paving the streets. Cooper, in his commentary on Good, mentions the rarity of the complaint in Cornwall since the establishment of copper-works, which he ascribes to metallic impregnation of the air; increased comforts and less exposure have, doubtless, their influence. Workers in tan-yards are said to be exempt. As to personal preservatives, it is well to shun exciting causes, wet, cold, exhaustion, and night exposure. Few disorders, as Hecker observes, are so prone to return: hence the necessity of avoiding errors in diet; in fine, every thing, even falls and blows, that may weaken or act as a predisposing cause. I was worried with intermittent for years; and a blast of the cold east wind, or night exposure, would, at one time, have sufficed to bring it on, at first for weeks, then days, lastly, in single or ephemeral attacks. In other respects, patients relapse more readily in autumnal, than vernal fevers; in quartan, than quotidian; and in quotidian, than tertian.

Splenic and hepatic engorgements, as induced by ague, are often difficult to get rid of, the more so if combined with serous deposits and breaking up of the constitution. Williams found the bromide and iodide of potassium serviceable; and Piorry states, that he reduced splenic hypertrophy by means of quinine, when venesection and bleeding failed. Tonics must be kept in mind, as also, attention to the state of the functions at large, with the special and general indications which they afford. Protracted intermittents pave the way for icterus, dropsy, asthma, and even phthisis: here Hufeland and others have given directions, which I need not repeat, for recalling the original disease.

III—YELLOW FEVER.

THE yellow fever, tropical remittent, vomito prieto, black vomit, maldé-Siam, coup-de-barre, fièvre matelotte, and fiebre amarilla, whether in the East Indies or the West, the shores of the Mediterranean, African, or Asiatic continents, are modifications of one and the same affection, produced by one and the same cause, paludal poison, or at least, a poison, in all cases, arising from vegetable decomposition, aided and induced by a certain amount of heat and moisture. We have no reason to believe, that the great laws of nature, with which it stands in such close relation, have undergone any material change; indeed, we have records from the time of Oviedo, *Historia general de las Indias*, for a period of three hundred years, in which mention is made of a complaint analogous or identical.

The symptoms of yellow or remittent fever are variable, and so described by all writers. Probably, the diversity is not greater than in many other diseases; nor should I think of minutely adverting to it, were it not made the pretext for a needless division into different maladies. The complaint announces itself by lassitude, restlessness, and lowness of spirits; or it may set in vehemently from the first, with rigors, followed by heat, thirst, intense headache, more especially over the orbits, pains in the back and legs, extreme precordial oppression, gastric irritability, and violent arterial action. Attacks at the commencement of epidemics are severe and fatal, towards the close, comparatively mild and innocuous. Some epidemics, again, are more violent in character throughout, than others. The eyes, as Rush tells us, are sad, watery, and injected, so much so, indeed, as sometimes to resemble balls of fire; at others, they have a brilliant or ferocious aspect, while the downcast and clouded features are suffused with blood. We can imagine, says one writer, the appearance which such a mask must present; the face, perhaps, yellow as ochre, and injected with red, eyes blood-shot, eyelids black as ink, and blood flowing from the corners of the mouth. All observers are in unison as to the frightful alteration which the features undergo. After a time, the body is tinged of a lemon or saffron hue, the supra-orbital pain becomes intolerable, and gastric irritability, terminating in a copious discharge of black matter, inveterate. This symptom, however, and the yellow hue, as Johnson observes, are occasionally absent in the West-Indian endemic, while they are present in the East. Sometimes liquid blood is thrown off, and that in such quantities, as to inundate the bed. The dark fluid may be expelled from other emunctories, as the nose, mouth, ears, anus, urethra, and vulva. Hence the urine is occasionally bloody or black. The sense of burning in the throat and stomach, indeed, is unappeasable, and so harrassing, that the least mouthful of food or medicine is instantly rejected; and many patients, notwithstanding their urgent thirst, refuse fluids altogether. The contents of the viscus last named, are discharged as if by a squirt, often in the face, or on the person of the by-stander. The tongue is sometimes red and dry, at others, moist and furred, and in a few instances, perfectly natural. Delirium, and even coma, have been witnessed in the early stages. The bowels are costive, the urine deficient or suppressed. Sleep is absent, or troubled with painful dreams.

Eruptions are not common, but urticaria, petechiæ, and more especially, ecchymoses, have been observed. Deveze describes gangrene in the back, and hiccup was witnessed by Palloni in Leghorn, by other observers in Spain. Some complain as if their bones were bruised or broken; hence, perhaps, *coup-de-barre*, from the demoniac process once employed to destroy criminals. The duration of the first period is uncertain; in mild cases, recovery, in severe ones, death, may ensue within thirty-six hours; or it may be four, five, six, or seven days. The symptoms in this dreadful malady are not constant; the principal distinctions consist in its being longer or shorter, more or less severe, and attended with exacerbations and remissions, numerous or few. A deceptive remission too often ushers in the disease with fresh violence, though with abated arterial action; the pulse, indeed, often becoming perfectly natural. Some patients complain if only touched; others, as Rush observes, pass through the disease with little or no apparent suffering. The lemon hue does not affect the skin all at once, but, first tinging the conjunctiva, extends uniformly in zones or streaks, over the surface. Now, gastric irritability wakens up or becomes more decided; hence the dreadful vomiting, which exhausts the patient and evades relief. In a few cases, the pulse intermits; worms, if any, are discharged from the mouth and anus; convulsions and subsultus, hydrophobia, even, as witnessed by Keraudren, ensue. Some, again, are seized with incessant wailing, distressing to all save the unconscious sufferer.

A fatal termination is marked by a small, quick, irregular pulse, frequent discharges from the different outlets, icy coldness of the extremities, and suppressed urine, the patient perishing in the act of passing the coffee-ground evacuation. Such cases do not necessarily present the black vomit, nor does it always continue till death; indeed, all suffering may cease before the final and fatal close. The intellect often maintains its integrity to the last, and the patient, far from experiencing distress or suffering, displays an ease and serenity not always the accompaniments of health. M. Calvet, labouring under yellow fever, Keraudren tells us, solicitously attended a patient, a friend, ill of the same disease in an adjoining room, noting particulars till the day he died; next day, M. Calvet, himself, died also. A little boy at Sierra-Leone contracted the endemic, which rapidly undermined his strength. Till the moment of his death, the child spoke tenderly to all around, apparently only anxious to spare trouble and anxiety on his account. In the instances which I witnessed, many preserved, while others lost their integrity of mind before the last. Sometimes reaction never ensues; the skin remains locked up, the features shrink and the expression lost, while cold and livid extremities, pulseless wrists, and suppressed urine, mark the intensity of the congestion. Should there be a favourable termination, on the other hand, convalescence is apt to prove long and painful, with great debility, interrupted sleep, and a weak, irritable stomach. Count Beltrami, a month or two after having experienced yellow fever at St. Domingo, complained to me of nothing so much as the state of this viscus. In a few instances, there is great proneness to sexual indulgence; but this is common in the young and vigorous, after other acute diseases. The yellow hue speedily disappears, but it has been known to persist a month or more. Should the patient be imprudent, a relapse may take place: in other

respects, an attack, though it do not secure immunity, renders the patient less prone to its recurrence. The subjects of bilious remittent are apt to suffer from chronic affections of the liver and spleen, which may, eventually, break down and destroy the health.

The morbid anatomy of remittent fever is little else than nugatory; while some pathologists admit, others deny the occurrence of inflammation and its products. Cadaveric changes, and the results of functional disorder, have been, probably, confounded with organic alterations. The brain and spinal marrow present all the marks of intense congestion. O'Halloran, indeed, speaks of coagulated blood in the latter; and clots, as Bally and others record, are frequent in the heart and adjoining great vessels. The liver is altered in colour and texture; the spleen, in many cases, is reduced to a pulpy consistence; there is softening of the mucous membrane of the stomach and bowels, which are, also, as well as the uterus and bladder, found to contain the inky fluid discharged during life. Lastly, the intermuscular cellular tissue is often infiltrated with blood. During epidemics, medical men, victims to anxiety and disease, have seldom leisure or inclination to institute post-mortem inquiries; and, when they do, are generally biassed by previous conclusions. We cannot, in fact, readily explain the varying symptoms; yellow hue, visceral congestion, gastric irritability, black discharges, suppressed urine, and the intellect sometimes clear and unclouded, at others, hurried away by wandering and delirium. The intolerable rachialgia was referred by the French commission in Spain, erroneously, however, to serous effusion. It has been said, that the nervous system is implicated; but, granting this, what do we gain by the hypothesis? A poison of great virulence is at work, and the constitution, according to its energies and peculiarities, struggles to throw it off; hence the singular modifications of vital action, too often only terminating in death, which the disease displays.

Doubtless, the Bulam and yellow fevers, the black vomit and bilious remittent, are one and the same malady. Malaria produces different effects, according to time, place, and circumstance; but it is more a difference in degree than in kind. The intertropical inflammatory fever, or synocha, from excess, over-fatigue, sudden chills, and other causes, is, probably, often, more or less allied with the endemic disease. The local influence is always so powerful, that occasional or accidental causes only serve to give rise to the ordinary malady of the climate. Pym and others strenuously alleged that there was a Bulam fever, so termed, contagious, without remissions, transported from Africa to the West Indies, thence to Spain, and distinct from the ordinary remittent of warm climates. Its specificity, however, as well as its contagiousness, have been disproved by Bancroft, and by facts. The Sierra-Leone remittent, described by Erly and Boyle, is marked by pain in the head, restlessness, extreme oppression, and intense heat of surface, particularly in new-comers. It is needless to go over beaten ground, or to prove afresh that the yellow fever of America, whether in the islands or on the main, and the yellow fever of Andalusia, are one and the same. Equally certain is it, that the African remittent, the Bengal, hill, and junglo fevers, are equivalent maladies. True, they do not always present the yellow hue and black vomit; but how variable is yellow fever itself, in different, as well during the same epidemics?

Periodic fever, immediately or remotely, of whatever grade or form, has but one origin, namely, a poison generated during vegetable decomposition, under certain conditions of heat and moisture. The stricken constitution tries to free itself from the morbid influence, and, in so doing, displays those perversions of vital processes that constitute the disease. The temperature necessary, appears to be about 80 degrees of Fahrenheit. Rush and others speak of remittents at lower ranges; but the poison was, probably, eliminated before. A few frosty nights, however, dissipate the complaint, showing its incompatibility with very low temperatures. The local origin of yellow fever was hotly contested in Philadelphia, New-York, Cadiz, and Gibraltar; nothing at the present day, however, is better established. The wharfs of American seaports consist of jetties of wood, supported by piles, extending over the water, which, owing to this obstruction, as well as the limited tide, is very imperfectly renewed. Hence impurities accumulate, and the nearly stagnant fluid emits a sickening stench, along with eddying bubbles of noisome gas. Hence it is, also, that the water-lines of these towns become haunts of disease, the fever rarely extending to elevated spots, and never to the country in the vicinity. Indeed, it appears evident to me, that these circumstances, along with the greater heat and increased barometrical pressure, sufficiently account for the peculiar form and virulent aspect of the remittent in such localities. Speaking of St. Domingo, M'Clellan observes, that Port-au-Prince is placed at the bottom of an immense bight, the lower part of the town, in fact, on a marsh gained from the sea. The skirts of this are covered with weeds, mangroves, decomposed animal and vegetable remains, on which the sun exerts its power, and the breeze conveys the noxious particles to the lungs of the inhabitants. The leeward sides of the West-India isles are most convenient for commerce; yet the sides in question, as Fergusson and others remark, are subject to disease, even to the water's edge. Free-town, Sierra-Leone, is situated at the base of a semicircular range of hills, apparently of volcanic origin. The river contiguous, is eight or nine miles wide; the opposite, or Bulam shore, low and swampy. At the foot of the hills, more or less water accumulates; the country around is covered with a nearly impervious bush, high trees, with creepers and underwood in all the exuberance of tropical vegetation. The heat, the year round, is intense; but, during the rains, owing to the extreme moisture and sinking of the barometer, the least exertion bedewing the surface, it is truly intolerable. This period is diversified with violent tornadoes, forked and sheet lightning, and awful thunder. In the early mornings, heavy mists roll languidly along the river, and are slowly dispersed by the sultry rising sun. During the dry season, the heat is less oppressive, the barometer is higher, the sea-breeze yields a further mitigation, the harmattans blow, the skin chips, and the languid frame experiences renewed vigour. Near the town, a low-walled graveyard, clothed with rank grass, holds the last remains of many a valorous heart, and tends to depress the passers-by. Yet, for all this, the waters are clear, the sky is blue, and scenes of paradisiacal loveliness abound. Carthagena, says Proudfoot, is particularly exposed to noxious exhalations, especially during seasons of great heat and drought, from tanks, docks, mast-ponds, and marshes. With respect to Gibraltar, Hennen, Amiel, and others, dwell on the

fact, that while the opulent inhabit cleanly, well-ventilated streets and houses, the poor swarm, in the closest proximity, amid incredible filth. Drains occasionally burst, and load the town with stench which they, as well as the impurities which accumulate on the beach, create. Ainslie dwells on the morbid agency of salt marshes in India, along with irregular seasons, and a close, moist, sultry atmosphere. Fevers, observes Twining, prevail, not only in the deltas of great rivers, but in marshy situations at the foot of hills and mountains, where the soil, composed of alluvial and vegetable remains, is washed from the adjacent heights into situations where there is no drainage, and very imperfect ventilation.

Possibly, decomposed animal matter may exert an indirect influence, but, otherwise, it is productive neither of continued nor periodic fever. The typhoid poison eliminated by the human frame in temperate regions, whether after previous disease or neglected cleanliness, is not a product of putrefaction, but an educt of living matter, and does not originate within the tropics. But, dropping this, I proceed to state, that yellow fever may exist not only on the stable land, but the floating deep, in ships as on shore. This circumstance occasioned considerable perplexity; contagion and malarious exposure were brought in to explain, till it was conjectured that local decomposition was the real source. Heat, however, will not produce the dreaded result without moisture, nor moisture without heat, aided by imperfect ventilation. A curious fact has been recently stated about the greater liability of steam-boats in warm latitudes. When these come to be exclusively constructed of iron, as they all should, this peculiarity will disappear. Vessels, indeed, as Keraudren shews, have been devastated in temperate latitudes; but, then, they had been previously long enough in the West Indies to generate the poison on board. Bancroft, adverting to this subject, dilates on the accumulation of offensive filth, after long voyages, between the timbers. New ships, it is said, like new water-casks, emit the worst exhalations. The operations of clearing out holds, and heaving down, are peculiarly destructive. This was exemplified in the *Thetis*, *Dart*, and *Nyaden* ships of war; and Dickson reports the production, from the same cause, of twenty-two fatal cases of black vomit in the *Circe* frigate. The *Regalia* transport, as Fergusson informs us, after leaving Sierra-Leone with a number of whites, and six or seven hundred negroes, a quantity of green wood having been shipped for fuel, experienced a most amazing mortality. Fever, we are told by Birnie, supervened on board the *Antelope* and *Childers*; in the latter, with black vomit. The first, the cockpit excepted, was clean and well aired; whereas, when the hatches were lifted off the fore and after hold of the latter, a horrid suffocating stench, in which a candle would not burn, issued forth. Thus, he adds, accounting very satisfactorily for the manageable disease in the one ship, and the comparative mortality and liability to attack in the other. Hartle states, that the effluvium, on opening the hold and limber boards of the *Pyramus*, exceeded any thing he ever experienced. A boatswain on looking down, merely, fainted; while every one exposed to the emanations, some negroes inclusive, had yellow fever. Exhalations from ships, even, may affect persons in contiguous houses, as we find from a case by Arrutti, and repeated by Gillkrest, relative to a

brig from Havana, at Passages in the Bay of Biscay. An instance somewhat similar, is related in the American Medical register.

It is a fearful peculiarity in yellow fever, that it seizes the robust and vigorous before the debilitated and unhealthy. New-comers, again, are more subject than the acclimated; men than women, adults than very young or very old persons. The seasoning gained in one place does not always protect in another: the people of Havana, says Humboldt, are apt to suffer at Vera-Cruz; and those of Vera-Cruz, at Jamaica. People from the marshy interior, again, suffer on the sea-coast of the States; while those from the coast, grow ill on visiting the interior. Rush, however, informs us, that the French refugees at Philadelphia enjoyed an immunity almost perfect, compared with the natives. Negroes, though not exempt, possess a freedom to which whites, under equal circumstances, do not attain. The former, however, alike with creoles and their children, lose their protection by residing in a cold or temperate climate. Bally and Deveze attest the diminished liability of the sickly and delicate; long residents, also women, are comparatively free; but, when violent epidemics ensue, the resistance which their peculiar or acquired constitutions offer, is overcome. I observed facts precisely similar on the coast of Africa: white persons of the sex, however, are few there. Arejula, in his *Breve description*, goes the length of stating, that domestic animals were not spared in Andalusia.

The empire of occasional, or exciting causes, is very great; so much so, that Rush remarks, if he were to enter a city under first impressions of terror and distress, his advice would be to beware of exciting causes. Heat, he agrees with Mosely, in thinking less influential in its immediate effects than cold; hence the advantage of fires and warm clothing. The early morning, and, more especially, the night air, are extremely prejudicial. I may add my own comparative testimony, and that of many others in America, the coast of Africa, different parts of Asia, and the Levant. Time after time, at Sierra-Leone, I have known wettings, night exposure, and even a trifling fall or blow, to bring on the disease. Of all who slept ashore at Edam, but four, Shields informs us, escaped: these were two obstinate cases of venereal, and two of chronic dysentery. Fatigue, exhaustion, drinking, indigestion, sexual excesses, indolence, all prove exciting causes. It is a current persuasion at Sierra-Leone, and insisted on by Boyle, that timid persons are more liable than others. I have known more than one instance of individuals, who, having marked out their final abode, and the tree under which they wished to rest, were, speedily after, borne away to their last home, and the spot they had signalized.

Few questions have been more warmly, and, indeed, acrimoniously discussed, than the contagious or non-contagious nature of yellow fever. The lesson afforded by Rush, in abandoning his long-cherished belief in contagion, is probably of more importance than even the weight of his opinion. It was, indeed, untruly alleged, that he had relapsed before death. The yellow fever, popularly so designated, restricts itself to certain localities. In the two hundred and seventy-four epidemics enumerated by Moreau de Jonnès, we do not find that the complaint was ever communicated by the persons or effects of the diseased. Old residents on the coast of Africa, St. Domingo, and the

West Indies, repudiate infection; did the latter quality attach, the malady, ere this, must have ravaged the globe. Rush records, that it did not spread from the city to the interior; and that sick fugitives did not communicate it to those around. French refugees, who bought the hospital slop-clothing, did not thence incur any mischance. The freest intercourse subsisted between Philadelphia and Baltimore; yet no cases ensued in the latter, whereas, several took place in New-York, despite a most vigilant quarantine. Osgood, during twenty years' practice in Cuba, never witnessed the transmission of the complaint. The French brig *Palinure*, indeed, with crew labouring under yellow fever, captured the English brig *Carnation*, and many prisoners, brought on board the former, died of the disease. This, at one time, would have been ascribed to infection, but is explained by the condition of the French vessel. The *Bann* touched at Ascension, the malady subsisting on board, and forthwith it appeared on the island, where it had broken out before. In 1785, it was very hot at Hayti; and Dalmas informs us, that obstinate intermittents were experienced in the mountains, pernicious remittents in the plains, and yellow fever at the Cape; showing that one and the same climatic influence, modified by greater or less atmospheric pressure, with more or less heat, and perchance local impurities, leads to the disease under different aspects. A persuasion in the contagion of yellow fever was, at one time, very strong in Spain; so much so, that Don Rodriguez Armesto, in his reflexions on the epidemy at Cadiz in 1800, having avowed disbelief, the government condemned him to retract, and his work to the flames! Yet the Franciscans at Xeres, says O'Halloran, moved by the wretchedness of the sufferers, devoted themselves, it need hardly be stated without risk, to the burial of the dead. The commission at Gibraltar in 1828, in the face of evidence, pronounced the disease imported; yet Hennen, Amiel, and others, have given the strongest grounds for the contrary. It was alleged, indeed, that the *Dydden* had been the vehicle; but the port-captain proved, that between 1814 and 1828, at least eight hundred vessels had arrived from places subject to yellow fever. Gillkrest assures us, that the disease was never communicated, by the sick and dying from infected districts, to refugees in the neutral ground. It was only necessary to avoid the local baneful influence, as the disease was not communicated elsewhere. Guyon of Martinique, and Ffirth of Salem, wore the garments of the dead, and both swallowed and inoculated themselves with the black vomit, with perfect impunity. The grave-diggers of 1798, in New-York, suffered no injury; while Valentine and Deveze assure us of having experienced no inconvenience from their dissections, or from cuts in the hands. Yellow fever cannot be both contagious and non-contagious; and the documents adduced by Bancroft and Chervin, may be said to demonstrato the negative of the question beyond reply.

The indications relative to the disease are somewhat uncertain, since an individual, doing apparently well, may be seized with black vomit, and suddenly expire. On the other hand, persons labouring under this usually mortal complication, occasionally recover. Hippocrates speaks of the passage of black bile or blood, *χολή μέλαινα, αἷμα μελαν*, as being attended with great danger. According to Rochoux, the West

Indians, as well they may, attach much importance to the fourth and sixth days. Indeed, a negro or mulatto woman would be more expert in her prognosis than a newly-arrived physician. I knew those who could tell by the eyes shortly before the disease came on; and the barbers at Xalapa, according to Humboldt, foretell the malady by the quick drying of lather on the chin. A friend of mine would have been buried alive in Jamaica, but for the discrimination of a negress, who affirmed that he was not dead. Cailliot sums up by saying the indications are unfavourable, as there are injured functions and organs, as the deleterious influence has been powerful, and as the subject may have been submitted to the predisposing causes. In severe epidemics, the prognosis is always bad, as are also early icterus, red injected eyes, hemorrhage, suppressed urine, and black vomit. As five days are the medium duration, the danger, it is obvious, will greatly diminish afterwards. An equal temperature, fever prolonged to the seventh or eleventh day, copious sweating, moderate discharge of yellow bile, and the return of the hemorrhoidal or menstrual flux, are considered favourable by Dalmas; as irritation and spasm of the stomach, with nausea and obstinate vomiting, absence of fever, prostration, swooning, terror, jaundice and hemorrhage before the seventh day, dilated arteries, hiccup, ecchymoses, black vomit, panting, and a small insensible pulse, are esteemed the contrary. Signs of moderate danger, says Rush, are chilliness at the onset, puking or purging of green or yellow bile, moist skin, pain in the head, sore mouth, moist or yellow tongue, salivation, whether by nature or art, sily blood, pains in the back and limbs, and an inflammatory spot on the finger or toe. Attacks after terror, anger, venery, intoxication, or those coming on after a chill, with sleepiness, paleness, violent or constant vomiting, obstinate costiveness or diarrhoea, suppressed or dark bloody urine, early yellowness, absence or sudden cessation of pain, fainting, a glassy, brilliant, or red eye, blindness, deafness, preternatural appetite, irregular pulse, restlessness, delirium and coma, coffee-coloured vomiting after the fourth day, smooth red tongue with bright edges, and unusual mental serenity, he enumerates as very dangerous.

The mortality is fearfully great, sometimes amounting to one half, or even three fourths of those attacked. Bodily strength and vigour, a protection in other maladies, bring no immunity here. The yellow fever, says Veitch, seldom hastens dissolution in the aged, or puny crawling beings, however youthful; but with the vigorous, the active, and the healthy, it delights to enter the lists, and, should aid not interfere, is sure to conquer. Between the tropics, as Littré remarks, the disease often reigns the year about, affecting strangers only, and, for the most part, sparing negroes, natives, and long residents; but, in temperate regions, it only displays itself in summer and autumn, sparing nobody, those from warm climates, perhaps, excepted. In Tortosa, says Bally, the love of life extinguished every other feeling: people rushed from their homes, now the seats of death, and scattered themselves over the fields, so that at the end of a month, the city contained but the third of its population, and of this third, four thousand five hundred had disappeared for ever. The number of deaths in 1793, in Philadelphia, was four thousand and forty-four; in Barcelona, twenty thousand perished within four months; and, in a still less period, five thousand in Palma. In Cadiz, during

the month of September, 1800, Arejula states, that five thousand six hundred were carried off. In the same city, four years later, and at Xeres, forty out of the hundred were destroyed; in Seville, in 1801, sixty out of the hundred; while at Carthage, in 1810, a quarter of the population was cut off. The mortality in the West Indies, now comparatively low, in 1796, was about one half; in 1802, in Charleston, Michaux relates, four fifths of the affected perished. And, lastly, among other instances, Proudfoot states, that, at Gibraltar, in 1804, the mortality was more than one in three; while, of nine thousand inhabitants, but twenty-eight escaped being attacked!

What from the extreme severity of the complaint, the treatment of few diseases is less satisfactory than that of yellow fever. It too often happens, also, that practitioners have not enjoyed adequate personal experience. Some, again, are sanguine in their advocacy of particular remedies, while others despair of the efficacy of any. The disease varies so much, epidemics vary so much, and the constitutions of those attacked vary so much, that it is not easy to lay down the precise line of conduct that is to guide us. Remittent does not assail old residents so frequently or severely, as new-comers; the treatment in one case, therefore, will be at once less energetic and more successful than in the other. Those who are temperate in eating and drinking, who avoid sexual excess, and night exposure, will, doubtless, in the long run, secure greater immunity than those who are neglectful of all precautions. It is not enough, merely to leave off drinking before one is drunk, eating before one is satisfied; it is necessary, in order to check the proneness to destructive excitement, to eat little and drink less. Were I, to-morrow, to proceed to a warm climate, I certainly would not see men die, as I have done, in eight and forty or fifty-six hours, with red injected eyes, flushed countenances, a burning skin and raging pulse, proceeding to coma and death, without vigorous efforts to save them from destruction. Unless contingently or accidentally, remittent fever is confessedly a disease of function; but we are not, therefore, to refrain from bleeding and other means calculated to relieve the intense excitement. New-comers and plethoric persons should be bled, so as to check the enormous reaction. I would, therefore, in such, take away blood, once or oftener, regulating the amount by the effects produced and the object in view. The stomach and bowels should be cleared out by sufficiently active purgatives, to which some would add emetics. The latter, in a few instances, though generally, and, I believe, justly proscribed, have removed the complaint; but, if exhibited, it should be early, before gastric irritation supervenes, and, if possible, so as not to superinduce it. We have choice of aperients: enemata, calomel, calomel and jalap, and croton oil, which last has the advantage of acting when dropped on the tongue. If the malady remit, we may exhibit quinine in large doses: Lafuente approved of the bark. I find by the New-Orleans Bee, that quinine was given in doses of from twenty to eighty grains, with alleged marked success, by the medical men of that city, in the epidemic, September, 1839. The object was to administer the remedy six or eight hours after the commencement of the disease, and before local congestion had set in. Analogy suggests that it might prove useful in yellow fever, as it is found to be in mild and pernicious intermittents. It is said, by Chisholm and others, if we affect the mouth, that

the sufferer is saved; sometimes, however, mercury is not borne. Some attach great importance to cold affusion; others, to the warm bath, cold water being poured on the head. When irritation of the stomach sets in, we may try leeches or a blister; the latter to the spine, it is said, has proved successful. In that form of the complaint which commences with intense congestion, smothered pulse, and cold surface, we must place the patient in a bath, and give gentle cordials. Here, unless we establish full reaction, bleeding appears inadmissible or impracticable. As the disease advances, and the strength gives way, aromatic emulsions, soup, jelly, sago, arrow-root, and the like, may be tried. Stimuli, as sound Madeira, or brandy and water, of which some have taken large doses, will be necessary. Solid food, which often induces relapse and death, must be carefully refrained from. Many, it is to be feared, perish during epidemics from sheer neglect: in other respects, cheerful attendance and moderate ventilation are best.

Gillkrest is rather opposed to blood-letting; the patient, he says, is afterwards found to require all the strength which has been taken away. Yet, surely the enormous arterial excitement, and intolerable glowing heat, both of which sanguineous emissions diminish, tend to exhaust, and, finally, to destroy. The absence of clot and buff is no valid objection; we do not bleed to lessen inflammation, but to set bounds to the prodigious reaction, and to limit local congestion. Proudfoot, at Carthagera, has taken away one hundred and twenty ounces, at four bleedings, in thirty-six hours, and with the happiest effects; vomiting, thirst, anxiety, and oppression of spirits, gradually gave way, and the patient, almost invariably, felt lighter and better. He advocates this procedure, however, moderately and discreetly, during the onset of the disease, and to the extent of one or two pounds from a grown-up person. In a circular to the Leeward-island station, Dickson remarks, that if bleeding, purging, and cold affusion be early and vigorously employed, there is great reason to hope the danger of the second stage will be averted, and the most unpleasant symptoms diminished, within the first four and twenty hours. This writer cautions us against deceitful lulls, which, like calms before a storm, are frequent portents of increased violence. From all that I have heard and seen, indeed, of the remittent of the tropics, I have come to the conclusion, that our power is limited as the disease is advanced. The ardent fever of the West Indies, so styled by Comrie, on board the *Raven*, was treated by means of large and copious bleedings, sometimes two hundred ounces or more, followed, if necessary, by the cold affusion, eighteen-grain doses of calomel, and half-drachm doses of jalap. Frequent doses of neutral salts were given when the mouth became tender; and the malady thus vigorously and early attacked, unless when the patient was late in applying for relief, terminated favourably, on the third or fourth day. Speaking of the third stage, this gentleman says, the skin was covered by a dark yellow suffusion, with large black blotches over the breast and back, the extremities were frigid, the skin loaded with a cold and clammy sweat, the abdomen painful on the slightest pressure, with almost constant vomiting of a dark yellow matter, if not pure blood. There were muttering, shrunk eyes and features, and cadaverous countenance; the teeth, lips, and gums, were covered with a black crust; a disagreeable odour exhaled

from the body; lastly, a sunk pulse, with singultus, tremors, subsultus, and death. Blood-letting, observes Birnie, removes the pain, brings on perspiration, prevents gastric irritability, and thus cuts short the disease. He measured the quantity less by the amount than the effects: in several of his cases, I see thirty, forty, fifty, and, in one, a hundred and ten ounces, respectively, in the first instance. His great success appears to justify the remark, that venesection secured a more rapid, certain, and perfect recovery, than any other mode of treatment. Burnett, M'Clean, and Rush, were all its advocates. Bleeding, says the last, raises the pulse when depressed, and reduces its force and frequency; checks, in many cases, the vomiting, enables the stomach to retain purgatives, and the latter to act; removes delirium and wakefulness, and prevents abortion; disposes to perspiration, lessens debility, eases pain, and, lastly, when used early on the first day, often strangles the disease in its birth. He administered ten grains calomel and fifteen jalap, three times daily, till four or five large evacuations were produced. No negro, he states, died under his care; and those of them who bled and purged the poor, obtained a success wholly unparalleled in regular practice. The French treatment in the West Indies, or that *dit du pays*, consisted in laxatives, emollients and small doses of nitre. Bleeding, when required, was resorted to, along with baths, and enemata; camphor was given in injections towards the close, and bark, perhaps, in the convalescence. Rush says, the old women, in 1793, at the Caraccas, who merely drenched their patients with lemonade and other drinks, were more successful than the physicians. The *traitement des mulâtres de St. Domingue*, consisted in frictions, with slices of lemons over the body; compresses, dipped in lemon juice, on the forehead, stomach, wrists, and ankles; with plenty of lemonade, and lavements composed of treacle and lemon juice. Slices of lemons on the forehead and hands, with copious potations of lemonade, I found among the most agreeable, and not least useful things, while sick of the remittent at Sierra-Leone. Good negro or mulatto nurses much increase the chance of recovery; their attentions are assiduous, tender, and even judicious.

Horace's question, *quid terras alio calentes sole*, might well be put to those who tempt the sultry tropics. Nature, doubtless, by the life-subduing diseases implanted in those regions, seems never to have intended them as the home of the white. In vain have we tried to colonize central Africa, the East or West Indies—the third generation is never seen. The race is nipped in the bud, and seems destined to give way to the swarthy aborigines, better able to struggle with the peculiarities of the soil. But for this, one grand tide of existence would probably have swelled south, abounding, as it does, in all that is beautiful to the eye, and grateful to the senses. Races adapted to each locality, live and thrive where the whites perish. Thus it is in the East and West, and thus on the African coast, where men and women of perfect symmetry, health, and beauty may be seen, while Europeans languish, sickly and diseased, into premature graves. Hybrids, indeed, survive, but the offspring of whites never; all that I can recollect, have died. Even in Egypt, the Turkish race is found not to subsist without continual importations.

As unhealthy localities cannot always be avoided, the best thing, so far

as may be, is to obviate their injurious tendencies. Troops, for example, should occupy, for a time, some intermediate region, as Gibraltar for the West Indies, and the Cape, for the East. Those who visit the tropics, at first, at least, should limit themselves in the article of food, still more in that of drink; they should, also, pay strict attention to the bowels. A slight mercurial course is rarely practicable, and hardly desirable. Night exposure, exhaustion, sexual excess, and disquietude are to be avoided; the license of old residents is ruinous to strangers. Every thing that quickens the circulation, the banquet, and the midnight dance, is carefully to be avoided. Lemonade and tropical fruits, in excess, afford a delusive refreshment; while wine and water, sangaree, and cold punch, are worse than hurtful. Drink is best at meal-time. Trotter ascribes the comparative exemption of females to their temperance, an exemption in which men, with equal forbearance, would share. The prickly heat, which I had to excess, and which arises from the heated surface, is not so beneficial as has been supposed. I have seen persons nurse this troublesome eruption, bare their bosoms to shew it to their friends, then take ill and die. Many, also, attach an ill-bestowed importance to wounds and running sores. Fear, as Boyle and others observe, is a predisposing cause; and I have known those who, to all appearance, frightened themselves into the grave. While some adopt every precaution, others rush into consuming excess. Relapses, from untimely exposure or undue indulgence, destroy numbers. M'Clean passes very cogent remarks on the impropriety of sending unseasoned men, with boiling blood and untamed passions, to warm climates, and proposes the substitution of veteran troops, with calm desires and established habits. New-raised men, says Hunter, are much more liable to disease than the disciplined. Older men, says Ballingall, speaking of the East Indies, are more disposed to look into futurity; their passions are blunted, and they do not rush, with the same heedless velocity, into destructive habits. I have known dissipated individuals on the coast of Africa, but they were all acclimated subjects; whereas, the same excesses in others, almost constantly proved fatal.

The morning, Veitch justly observes, is best fitted for exertion; which I would always preface with a warm breakfast of coffee or cocoa. I have, again and again, seen ships' crews obliged to toil during the utmost heat of the day, by which, undoubtedly, many were subsequently lost. The negro should, invariably, be engaged in wooding, watering, loading, unloading, and even watching at night; as for careening and heaving down, it should be attempted as rarely as possible. Sailors, during their runs ashore, practise every species of low debauchery. I have seen these poor fellows swarming in the grog-shops, and even lying drunk in the streets, with tropical rains pouring over them. When our ships of war were employed to clear Navy Island, Lind relates that the people were sometimes so suddenly seized, as, in their delirium, to cut down those around them with the hatchets. He also mentions, that the sick on board, with perhaps no bed, cold water to drink, and exposed to the cool sea-breeze, recovered; while those confined to close small chambers on shore, expired, blood oozing from every pore. How sad the bereavement to friends and relatives; how great the loss to the community! a moral responsibility, assuredly.

is incurred and violated, when those who possess the power, do not employ stringent and effective measures of prevention. Let us hope that commerce and ambition will not always display the same remorseless avidity, that unhealthy spots will be improved, impracticable localities abandoned, and that there will be additions to human life and well-being not hitherto realized.

IV—PESTIS, PLAGUE.

THE aspect of this formidable disease is subject to considerable varieties: at the commencement of epidemics, so violent as to destroy the generality of those affected; towards the close again, so mild, that comparatively few perish. Like other febrile affections, plague may set in with rigors, pains in the back and limbs, followed by reaction; or there may be a hot, burning skin, and rapid pulse from the first. After a few days spent in the greatest disquietude, if the patient survive so long, buboes, in favourable cases proceeding to suppuration, appear in the groins and armpits; while carbuncles, often sloughing, take place on the body and limbs. Pustules, petechiæ, conjointly or separately, also attend the disease. Some writers make a distinction between anthrax and carbuncle. The muddy injected eye imparts a melaucholy and somewhat fierce expression to the countenance. The stomach is often excessively irritable: there is frequent diarrhœa, and blood is sometimes discharged from the bowels, uterus, and nostrils. In many instances there is mental disturbance; oftener, perhaps, none. In fatal cases, the patients grow gradually worse, and expire towards the second, third, fourth, or fifth day; after this, if they survive so long, and short of abortion, they commonly recover.

Bertrand, in his *Relation Historique*, describes two leading forms at Marseilles; the one with rigors, precordial oppression, nausea, vomiting, headache, fever, and terminating in five or six days in sweating or diarrhœa, sometimes with, sometimes without suppurating buboes and anthrax; the other marked by sudden death, or death after six, or four and twenty hours, more frequently, two or three days. Many thus carried off, complained only of weakness, the pulse being natural; the eyes, however, were sparkling and furious. Desgenettes speaks of cases with buboes, and slight fever, promptly recovering; of others with delirium, buboes, and fever, terminating, perhaps, favourably towards the fifth or seventh day; and, lastly, of others, with intense fever, delirium, buboes, carbuncles, and petechiæ, with remission or death from the third to the fifth. The disease, says Larrey, may suddenly develop itself with symptoms the most alarming; but with no exterior mark, save, perhaps, gangrenous petechiæ at the moment of death, which ensues in a few hours: more commonly, however, there are headache, weakness, nausea, and vomiting, afterwards fever and buboes; which, if the latter inflame and suppurate, lead, about the fourth day, to a decline of the symptoms; but, if not, the malady makes rapid progress, and patients perish between the third and fifth. Patrick Russel has arranged the symptoms under six classes. The first four, he admits, nearly approach each other; the fifth he reserves

for slight cases, the sixth for those that are anomalous. Cases comprised in the fourth, marked by fever, well sustained pulse, exacerbations less decided, and tendency to discharge by the skin, were most frequent. A sense of oppression at the precordia, which those affected were at a loss to describe, in one degree or other, very slight forms excepted, was a constant attendant. The sick, ever changing their posture, shewed how they suffered; but, when asked where their pain lay, either answered hastily, they could not tell, or, with a fixed wild look, exclaimed, *kulbi, kulbi*, my heart, my heart! This anxiety terminated, at length, in mortal inquietude; the patient, for many hours in the last stages, writhing his body and limbs as if in agony. Bulard divides the complaint into cases which present enlargements of the axillary and crural lymphatics, those with petechiæ on the surface, and those which display carbuncles on the limbs, rarely on the face, trunk, or extremities. The number of buboes or carbuncles, according to Hodges, is uncertain, being sometimes single, sometimes double, and, occasionally, invading every gland. Petechiæ, he observes, are numerous or few, flitting from place to place, and no ways critical. He mentions a girl whose body was covered with them, but perspiration being induced, they disappeared. Bertrand and others tell of a sweetish odour, particularly where there was much sweating, and which adhered with tenacity to the chamber and furniture. Russell, Grolmann, and Mindererus, speak much of a whito, and, often, a trembling tongue. Palmarius mentions carbuncles on the nose and fingers: they have even been seen on the summit of buboes. Schenck insists on epistaxis as a pathognomonic sign; and Diemerbröck dwells on a peculiar exanthem, the apex rising above the surface with a deep basis. These seem analogous to what Hodges styles *stigmata pestifera*, but the term has probably been applied to different eruptions. Many labour under the strangest hallucinations, throw themselves out of windows, run naked along the roofs of houses, the streets, or jump into wells and rivers. Larrey mentions, that the sick would rise out of bed, and, after wading in the sea, return quietly back. A great tendency to venereal indulgence has been observed in those who recovered. One attack affords no exemption from another; many have been affected a second time, not long after the first. Larrey mentions an officer, who, years after, on the anniversary of his disease, felt pains in the seats of former buboes.

The contagious character of the disorder, the paucity of medical men, and prejudice against dissection, have greatly restricted inquiries after death. So far as they have been instituted, they throw a very feeble light on the complaint. The bodies and countenances of those who die of plague are described as being sadly distorted—which Clot Bey denies—and emitting a very offensive smell: the skin is covered with disfiguring eruptions, and blood flows from the nose and mouth. Savarcsi, at Damietta, observed a mucous deposit on the lining membrane of the stomach and bowels, with mesenteric induration. Didier, at Naples, remarked a gall-bladder tinged with inspissated bile. Chicoyneau, Vorny, and Soulier, at Marseilles, found the thoracic and abdominal viscera dark and livid: they speak, along with Couzier, of internal carbuncles. Pugno found the brain pultaceous, the heart soft and flabby, the stomach and bowels covered with gangrenous spots.

Samoïlowitz saw nothing except the flesh softened, and very flexible articulations. Larrey says the viscera were soft, and the intestines distended with air. It is clear, from the foregoing, that those who refer plague to organic alterations are signally at fault. Many would confound it with typhus, a disease with which, besides a few general features, it has little analogy. Who does not perceive, observes Burserius, the connexion which this scourge of cities, provinces, and of the human race, has with the exanthemata? Buboes, carbuncles, and other eruptions, affect the surface, sometimes with, often without fever: the features of plague, however, are by no means constant, and, unlike measles and scarlatina, it may be experienced oftener than once. There is much more veresimilitude in the doctrine which explains it as a species of poisoning from sources, in the first instance, unknown; afterwards, propagating itself by contagion. Animals destroyed by injecting putrid substances into their veins, present phenomena not unlike those displayed by plague. The supposition of the disease being seated in the nerves, bloodvessels, or lymphatics, seems alike nugatory: the absence of the buffy coat in the blood, as of other tokens, invalidates the idea of its being inflammatory. However these may be, we know that plague is a disease of singular malignity, and that it overwhelms all the powers of life in one common vortex of destruction. Whether the devastating epidemics of former times, the plague of Athens, of Syracuse, the blue and black deaths described by Hecker, were what we now denominate plague, must ever remain matter of uncertainty.

The existence of plague is determined by the presence of the symptoms already described. Persons, however, may be cut off so suddenly as to leave no trace on their remains. Sometimes the buboes appear early, and may accompany alike, the mildest, as well as the severest forms of the disease. Anthrax, carbuncles, and petechiæ, attend a more advanced period. Russell adverts to the hesitation which the people of Aleppo experienced in making Europeans acquainted with the existence of the complaint: it was only by examining the armpit, groin, or, perhaps, by the shrinking of the patient when the wrist was drawn forward to feel the pulse, that he succeeded in detecting it. Pestilential outbreaks, however, as such, are acknowledged with extreme reluctance, not only by the community which they implicate, but the medical men who have to oppose them. The very announcement, which should always be cautiously made, is productive of terror and alarm. So far as I can see, observers generally unite in describing three leading forms of the complaint: first, slight fever, with early buboes and rapid recovery; next, violent fever, buboes, often carbuncles, delirium ceasing on the fifth, the disease on the seventh, the majority recovering; lastly, raging fever and delirium, retarded buboes, which perhaps go in, carbuncles, petechiæ, prostration, and, with few exceptions, death between the third and sixth days. Plague may derange the head, chest, or abdomen, and is named accordingly; the preliminary rigor has been mistaken for ague. Physicians, who practise in its vicinity, observes Joseph Frank, should ever bear in mind the imminent risk of plague: every sudden death should awaken disquietude, and induce minute examination of the remains, taking care, at the same time, not to confound scrofulous or syphilitic swellings, as also epizootic anthrax, with pestilential. It has been recommended to make a suspected

person walk along the floor, as it tends to display the characteristic giddiness, and awaken the irritability of the stomach. The importance of correct discrimination is very great; for so long as this hideous malady subsists in any part of the world, we can never be entirely safe. It was by a single omission at Marseilles, that forty thousand persons were swept away, within three months, from that city and neighbourhood; and little was needed to have involved the civilized world in a similar, but greatly-extended calamity. Age after age, plague has ravaged the earth with pitiless severity; and though, for the last century, Europe has been comparatively exempt, still its proximity in the Levant—wherein, so lately as 1808, the Barbary states, according to Jackson, lost two hundred and thirty thousand souls in a twelvemonth, should induce unrelaxing vigilance.

The imperfect development or disappearance of buboes, is a prognostic of great danger; but their coming forward with a kindly suppuration is considered favourable. If carbuncles, also, recede, or should the inflammation subside, it is said to augur ill. Pestilential engorgements in the neck, more especially on both sides, are ominous of death. Wagner saw no one recover in whom buboes, carbuncles, and petechiæ, were conjoined. When buboes appear, the strength being exhausted, it merely evinces the unavailing efforts of expiring nature. Adults, and those in the vigour of their time, are the usual victims of plague; old, young, and delicate persons, being comparatively exempt. One author gives the case of a woman who suckled her child throughout an attack of plague, without prejudice to the infant. Women, those childbearing or in labour excepted, enjoy greater immunity than the opposite sex. Children, it is said, have been born with tokens of plague on them. Who, says Hodges, would not pity these young candidates for mortality, greedily sucking their diseased mothers' breasts, and shortly to exchange the natal couch for the sepulchre? During pestilential epidemics, women often abort from terror alone; the disease, itself, causes many to do so. In bad cases, patients seldom survive beyond the second or third day; after this, the chances are favourable to recovery. The relative and absolute mortality is always immense. From five to eight, out of ten, died among the French first attacked in Egypt; subsequently, two thirds recovered, a result which Larrey ascribes to the zeal and courage of Desgenettes. From the returns of Webb and others, it would appear that between three and four hundred, or better than one half, died among the British. It is sickening to contemplate, as described by contemporaries, the ravages of this dreadful scourge: they alike employ the strongest terms that language affords, to characterize them. Most have perused the heart-rending details furnished by Petrarch, Boccaccio, and Macchiavelli. Although Defoe did not witness the pestilence himself, he gives a vivid picture of it. Plague seldom lasts long in an epidemic form, else our race would become extinct: the rapid increase of population, after its cessation, has been a frequent theme of observation.

As with fever and cholera, plague assails those who are pent up in dirty, ill-ventilated dwellings: in a word, the poor. Clarendon, after the last great plague, missed few of those friends who lived in the best ventilated parts of London. This city, and, indeed, as Sydenham and other writers inform us, all the large towns of England, Ireland,

and Scotland, were periodically devastated. Our cities are better built, ventilated, and cleansed, than they were; but not enough so to exonerate us from a recurrence of the disease, should our quarantine regulations, as I sometimes dread, be in time so far relaxed, as to permit persons labouring under the complaint to land. In Egypt, high inundations of the Nile lead to famine, and famine to plague. We are aware of no immediate cause for its production independent of contagion: others must subsist, but they are so subtle, as to evade detection. The pestilential constitution of the atmosphere, imagined by Sydenham, is about on a level with celestial starry influences. In Egypt, they relegate it to Syria, and in Syria to Egypt. This last country, it is alleged, was formerly very healthy; and Pariset and Lagasque would refer the malady to the altered habits of the people. Formerly, animals not consumed as food were dried, now they rot in the streets; filth, in revolting masses, everywhere abounds, and the dead are superficially buried. Putrid emanations do not generally produce disease; and it has to be proved, that they are capable of giving rise to plague. The latter, again, has been ascribed to miasmata from the mud; yet other great rivers overflow, widely as the Nile, with no such result. Plague is endemic in Egypt, but its origin, remains unknown.

With few exceptions, plague does not subsist during an elevated or depressed range of temperature. For this reason, about the middle of June, or 80 degrees of Fahrenheit, and in winter, or at about 60, cases take a favourable turn; few, if any, new ones ensue, and those are of a mild nature. These changes are announced by the firing of cannon; but some say the plague never entirely ceases. When the cold, however, came on in London and Moscow, people, as in Egypt and Turkey they still do, occupied the houses, handled the effects, and wore the habiliments of the dead, with perfect impunity. Without this all-important and wonderful provision, the plague would only cease when there were no more victims to devour. It has, however, served to furnish a fallacious argument in favour of non-contagion. As in the case of yellow fever, plague may subside in a given locality; yet strangers are still liable, until it wholly disappear. Bancroft mentions, that, during the prevalence of plague in Egypt, individuals from a hotter country, as India, were liable to the disease, while those from a colder one, as England, escaped.

It is consolatory to know, that, with cleanliness and ventilation, plague is not a very communicable disorder. Larrey does not think that the pest, in slight cases, and during the early stages, is infectious; or that there is any thing to dread in feeling the pulse with the finger ends, in opening or cauterizing buboes and carbuncles, in the quick application of topical remedies, in touching by points, the body and clothes, or in passing through the sick room when permeated by a current of air. In ten days, it is said, clothes and furniture become innoxious; indeed, I do not think plague can be imported from one country to another, except in the persons of individuals actually suffering from the disease; hence, if this be correct, the utility of quarantine can only consist in the isolation of such. The infectious miasms do not extend more than a few feet; some even affirm, that nothing short of actual contact will suffice. Be this as it may, it is better to avoid the

patient's breath, the emanations from his body, as well as all needless contact with his person or clothes. A few, as Bulard, seem wholly insusceptible of the disorder, and remain midst the dead and dying with impunity. Some, as Rigand, escape at one time, but take ill and die at another. Practitioners have been so rash as to inoculate themselves with the matter of buboes: of these, some contracted the disease, while others escaped. Clot Bey affects to deny the contagion of plague, but he is without experience; Grassi, attached fourteen years to the hospital in Alexandria, was of a different opinion. If there be an infectious disease, it is plague; and that any man, with the mass of existing evidence, can doubt it, is but demonstrative of the occasional waywardness of the human mind.

The therapeutics of plague are involved and contradictory: the opposing statements, vain disputes, and, crowning all, the hideous mortality, plunge us into despair. Rush thought that for every disease a remedy was provided in the country of its birth; but, short of preventive measures, we know of none such for plague. Besides general attentions, mild cases need little interference. Bleeding, if at all, is to be employed at the very onset; and then, only in the event of intense excitement and cerebral congestion, or symptoms simulating pulmonary or pleuritic inflammation. In the great majority, more especially when prostration ushers in the disease, it is to be condemned. Purgatives are held in no greater esteem; if given at all, they must be of the mildest kind—manna, rhubarb, cassia pulp, or prunes. The objection is their tendency to produce diarrhœa, a result which, in this complaint, it is asserted by Diemerbröck, Orræus, and Mertens, is always attended with disastrous consequences. Some, indeed, aver, that constipation is favourable; and that looseness, whether spontaneous or induced by art, is always fatal. The symptoms are the result of a specific poison: we may give medicines, and produce their wonted immediate effects, but the malady remains. The briefness and mortality of plague, and paucity of practitioners, themselves perhaps, distracted with terror and assailed by death, are opposed to the efficient administration of remedies. Emetics, indeed, have been found to cut the disease short, and to render it more manageable; but they are only admissible very early in the case, and in the absence of gastric irritation. Mercury has been tried: M'Grigor reports favourably of it. Luigi advocates olive-oil frictions; by Faulkner they are condemned. To the manipulator the danger is obvious. When prostration ensues, wine becomes necessary, and is praised by Mindererus as a cordial of great efficacy. Opium is similarly useful: should diarrhœa supervene, it is imperiously indicated. Ice, at the suggestion of Catherine II. was employed by Sanoïlowitz, but without success. As to personal attentions, the patient should be kept scrupulously clean, and his apartment well ventilated. To encourage the spirits of the sick, is a precaution too obvious to insist on; with this intent, aspersions of vinegar or camphorated spirits may be had recourse to. The linen ought to be often changed, and excretions received in vessels containing water impregnated with chlorine. Lemonade or plain water may be employed as drink; and when the strength flags, light soups, sago, and arrow-root may be resorted to. The difficulty of carrying curative measures into effect, when the living hardly suffice to bury the

dead, will be obvious. As the disease is checked or rendered milder, the temperature being raised or lowered, would it not be matter for experiment whether its artificial elevation or depression might not be attended with favourable results? The local treatment is simple enough: buboes require emollient cataplasms or compresses dipped in warm water; when they mature, an issue should be given to the contents. Larrey conceived that he hastened their progress by applying roasted squills; when they were indolent, he even resorted to the actual cautery aided by cataplasms. In this way, inflammation, followed by suppuration, might take place, and the patient recover. It seems undecided whether carbuncles should be let alone, or a vent furnished to the decayed cellular tissue. A superficial incision to free the eschar cannot prove hurtful; but deep scarifications are inadmissible. Emollient applications, or a simple cabbage leaf, however, do very well for the first few days. Bullæ and pustules may be opened, and water dressings applied. Bulard tells us, that, in the hospitals at Smyrna, which were wretchedly managed, they actually cut out buboes, thereby often inducing fatal hemorrhage! The sick, he adds, raised his hands to their parched and burning lips, and testified, by looks the most expressive, their gratitude for his attentions. When buboes did not exist, this practitioner, with the view of concentrating the disease, introduced irritating substances into incisions in the groin and axillæ. The sick, however, were brought in such numbers, and in such quick succession, that all could not be treated; add to this, the majority were half dead, so that of two hundred, but thirty warranted an attempt at cure.

As regards the prophylaxis, there can be no doubt of the influence of predisposing causes; hence debauchery and excess, with depressing passions, are to be avoided. As for the preservative influence of brandy, smoking, or salivation, it is null. The mind, however, clings to the notion, hence frictions with oil, warm baths, issues, and aspersions with three-thieves vinegar, or camphorated spirits, need not be wholly repudiated. Human credulity has run riot on this subject; and inoculations with cow-pox matter, and even the latter, mixed with pus from buboes, and powders composed of the bones of victims, have, in turns, been praised and abandoned. Some chew cloves; chlorine fumigations might, perhaps, prove useful; but, at any rate, strict attention to cleanliness and ventilation is indispensable. As close inhalation of emanations from the sick, doubtless, communicates the disease, a preservative, so far as these are concerned, would be derived from a glass headpiece or mask, communicating, by means of a flexible tube, with the external air. Thus guarded, the physician, friend, and attendant might, perhaps, brave with impunity a medium otherwise pregnant with danger and death. The water-carriers of Cairo, also dealers in oil, were said to be exempt; and Larrey speaks of the immunity enjoyed by those with suppurating wounds. Partly with the view of inducing a milder disease, partly to test its communicability, different persons have inoculated themselves with the matter of plague. Of these, White died, and Valli escaped with difficulty; others, indeed, as Bulard and Clot Bey relate of themselves, and as Bowring affirms of Rosenfeld and Hepitis, performed the operation with impunity. As in the case of syphilitic, it is probably only at a certain period that the

matter of pestilential buboes acquires its specific qualities, and is capable of communicating the disorder. Bowring speaks of a person called Lardoni, who adopted every precaution, yet contracted plague and died. Granting that his precautions were effective, however, it only proves, not that plague is non-contagious, but that it has other sources.

Russell, Frank, and Howard, give numerous directions relative to quarantines and lazarettos. Such establishments are, doubtless, necessary; but their rules are vexatious, and the period of confinement for persons in health, over long, if not wholly superfluous. Were needless restrictions abated, there would be no inducement for surreptitious evasion. Mr. Bowring is beside the question, when he infers the inutility of quarantines from their abuse. He does not sufficiently take into account the limitation of plague by an elevated or depressed range of temperature. The affirmations of Mahometans, as to the non-contagiousness of the disorder, are of no weight, their creed rendering them indifferent. M'Clellan's arguments are neutralized; first, by the fact of his contracting plague in the seven towers at Constantinople; next, by his own avowal of error. Bowring repudiates the advice of J. Frank, who would hinder any one who believed in the non-infection of plague, from exercising a public function that bore relation to it. I am strongly inclined to believe, that plague is not communicable, except by the person of the sufferer or his immediate effects, for a short time, say ten days afterwards; and, that by cleanliness, ventilation, and isolation, it may be rendered, practically speaking, wholly incommunicable. In fact, the yearly arrival of cotton and other articles, from the Levant, goes to prove that the disorder is not transmissible at second hand.

If we cannot often cure, we may prevent the propagation of plague. For one case arising from endemic causes, a thousand, probably, spring from contagion. If an individual, therefore, contract the disease, let him be isolated; if a family, let it be isolated; if a town, a district, or a country, still the answer is, let it be isolated. In fact, strict and stringent isolation affords the only rational grounds of immunity. After plague was introduced into Marseilles by the people in Chataud's vessel, it crept gradually from the Rue de l'Escale to the Hôtel Dieu, in which six hundred persons, foundlings and others, thirty children excepted, were all swept off. A nunnery, however, with other public institutions, by means of strict isolation, wholly evaded this dreadful calamity. War having broken out in 1769, in Moldavia, says Mertens, the plague was propagated from the Turks to the Russians, and some of the latter died in the city of Yassi. Next year, it spread to Podolia, thence to Kiow, where four thousand perished. The communication was cut off, but a prosector of anatomy and eleven others, died in the military hospital with buboes, carbuncles, and petechiæ. Mertens did not hesitate to express himself as to the nature of the malady, which had disappeared for the winter, but was of opinion, that with rigid isolation the general safety would not be compromised. The public now indulged in premature security, and all prudential measures were abandoned; in fact, the people will not give the name of plague to any disease that does not announce itself by frequent and sudden deaths, and carry off its thousands. In January, 1771, a woman with a tumour in her cheek took refuge with a relative, in a manufactory for

soldiers' clothing, in the centre of Moscow; she died, and successively after her, one hundred and seventeen. The terror became general; precautions, now too late, were taken; the sick were brought to the monastery of St. Nicholas, the well, to that of St. Simeon. Baths were shut, and the town divided into seven districts, with a physician and two surgeons to each. When a common person was seized, he was sent to the hospital: a noble or citizen, he was restricted to his house for eleven days. For all this, few believed it was the plague; many even thought medical men had invented the designation, others were in doubt. Towards the end of June, matters grew worse in St. Simeon's; six men died in one house in the suburbs, the seventh had fled. The commonalty were then attacked throughout the town; and by the close of July, two hundred perished daily. Large livid petechiæ, vibices, often buboes, and carbuncles, were detected alike on the sick and the dead. About the middle of August, the deaths, each day, were six hundred, but in September, the mortality was a thousand: buboes and carbuncles became general. Now, the populace, who looked on the disease as a divine scourge, rushed into the hospitals, re-established the ceremonies of religion, and embraced, according to custom, the remains of the dead. The tumult was put down by an armed force; but the contagion, as might be expected, assumed fresh virulence, and twelve hundred perished daily. Appalled at these disasters, the people implored relief, but the monasteries were full, the contagion was every where, and the city became, as it were, one huge hospital. At this juncture, Count Orloff formed a council of health, and every thing was done to destroy contagion; it was not till the tenth of October, when slight frost ensued, that the disease was less violent and more protracted; carbuncles and petechiæ became rarer, but buboes more frequent. The extreme cold seemed to place an interdict on the poisonous principle; attendants on the sick were affected with difficulty, the dead were buried with impunity, and patients, notwithstanding their buboes, were able to go out. By the end of the year, plague had ceased: the numerous bodies buried in the houses were safely removed. Not less than one hundred thousand had perished in Moscow and the environs. The grave-diggers were swept off; they would practise no precautions, and usually grew ill on the fourth or fifth day. The poor were almost the only victims; three nobles, and a very few imprudent citizens, having been affected! In visiting, says Mertens, all we did was to leave a foot of interval; this, and avoiding contact with the clothes or persons of the sick, ensured protection.

The orphan refuge at Moscow, at this time, contained a thousand children and four hundred adults. Provisions were laid in, and no one, without an express order, permitted to go in or out; meat and letters were received through vinegar. Mertens visited the establishment twice daily, and two surgeons separated suspected cases, by which means plague, it is alleged, was detected and arrested seven times. A farm near the city was set apart for the reception of nurses and children; the clothes of the latter were burnt, and their persons washed in vinegar and water, and, even then, were not received till a probationary interval had expired. One child was brought in with a bubo on its body, and another was attacked during the period of sequestration. The restricted existence of the disorder, in the first instance, the facility with which it

might have been suppressed, the limited power of the infection, as also its exclusion by means of isolation, and extinction by cold, are rendered clearly evident by the foregoing recitals. It is notorious that the inmates of European factories and consulships are exempt; and, though unacquainted with the primary source of plague, it is quite clear, if the most ordinary maxims of prudence could be instilled into the minds of the dwellers in the vast regions of Islamism, that pestilence, with its horrors, need never prove epidemic again.

V—CHOLERA MORBUS, CHOLERA ASPHYXIA.

THERE is little doubt of this being a new disease. It is, at any rate, different from the autumnal cholera described by Sydenham, and even that adverted to by Bontius. Sanscrit references are too obscure to permit much stress being laid on them. Like other pestilential maladies, the disease sometimes comes on so suddenly, and with such violence, that the patient has hardly time to complain ere he die. Sinking, lassitude, and debility often go before; then a diarrhoea, styled premonitory, lapsing into obstinate purging and vomiting. The ordinary contents of the stomach and bowels are discharged, followed by vast quantities of a peculiar fluid. Spasmodic contractions, first of the lower, then the upper extremities, ensue: these often extend, with uncontrollable violence, to the abdominal muscles, and, after exhausting the patient, disappear. Urine and tears are suppressed; the extremities grow cold; the hands appear as if sodden in lime; the nails become blue and curved; the pulse ceases at the wrist; the eyes sink in the sockets, and are surrounded by a dark areola; the cheeks fall in; the lips are retracted so as to show the teeth; the tongue grows cold, the voice faint and stridulous; the countenance displays intense anxiety, and there is extreme oppression at the precordia; a clammy stinking sweat bedews the surface; a livid, indigo or leaden hue spreads over the body, and, finally, after a period of insensibility, more or less prolonged, death winds up the scene. I have seen the disease run its course in six hours. As Scot observes in the Madras reports, which I hold in my hands, purging is a more frequent symptom than vomiting, and, in the majority of cases, first in the order of occurrences. Even where purging was absent or unfrequent during life, the intestines have been filled with the fluid already adverted to. This, not unlike serum with floating floeculi, has been compared to eongee or soogee water, otherwise, water in which rice is boiled. It is evacuated as if by a squirt, often in enormous quantities, and with an impulse which the patient is wholly unable to restrain. Scot and others speak of innumerable cases in which death took place, there being no other symptom, after one or two watery stools. These evacuations are attended with no pain; they generally cease before the final close, but sometimes, as Brown remarks, continue within a short period of it. A fluid, wholly similar, is also vomited, but to a much less extent, and is replaced by dry retching. During all this period, the thirst is unappeasable, and the patient drinks on, though he have thrown off the moment before. He complains, though ice-cold to the touch, of intolerable heat and

burning, with tightness and oppression across the chest, and seems desirous of nothing so much as to keep his hands and arms out of the clothes.

Suppression of urine is universal in the advanced stages; coma and dyspnœa, also, are common occurrences. The blue colour may be absent, even in fatal cases; nor is the pulse, in such, always wanting. In well-fed plethoric adults, however rapid and uncontrollable the disease, I have known the pulse to remain good to the last, and the hue and heat of the surface much the same as in health; but I never witnessed this in the under-fed or debilitated. Multitudes perished in a state of collapse, without even an effort at reaction. Some became cyanized with great rapidity, and either continued in this condition till death, or in the smaller number of instances, the pulse and heat of surface would return, the blue colour disappear, and the cadaveric aspect wear off. A few maintained a sort of imperfect perception during collapse; they replied when roused, but seemed unwilling to exert themselves; others, again, maintained their intellectual activity; I have even seen them smile in return for services rendered, at the very close. In one instance, a person walked into the hospital leaning on the arm of a friend; on feeling the wrist, there was no pulse, and he died a few hours after. In negroes there were retracted features, and cold surface, but the colour was unaffected. Collapsed children did not become so much blue, as copper-coloured and icy cold; the subcutaneous fat on their little bodies was as if frozen. The stench from cholera patients was quite peculiar; it chained the attention, and clove, as it were, to the throat and palate. In the first five or six hundred cases which I had under my charge, and which occurred in summer, there was no consecutive fever; afterwards, when the cold set in, it became common, and constituted one of the most shocking, violent, and uncontrollable diseases I ever witnessed. The pulse rose, the skin became hot and burning, the conjunctiva was either injected with blood or relaxed and yellow, so that when the patient lay with eyes half open and the balls turned up, the expression was hideous. Add to these, in many cases, bloody stools, vomiting, and death, after utter prostration, in a fortnight or three weeks. Consecutive fever, though adverted to in the Bombay reports, is rare in India. In some instances, cholera terminated in fatal dysentery, with purulent discharges and intestinal ulceration. Sometimes, strange to say, the heat of the body was renewed after death, and stranger still, automatic motions ensued in the lifeless remains. I witnessed these, giving rise to the popular belief that persons were buried alive, in five or six instances. I had directed a body to be removed, but the bearers said the person was not dead, though I had seen the individual previously expire. In effect, on going to the bed, the right fore-arm was moving slowly up and down on the breast, the lower jaw opening and shutting, while the feet were oscillating to and fro. This phenomenon, probably galvanic, was adverted to by Socolow of Orenberg, and others.

The disease may last three or four days; the average duration, however, was about forty-eight or fifty-six hours. In some, collapse ensued after a few loose stools; in others, not till spasms and discharges had induced utter exhaustion. Certain subjects bore up wonderfully, whereas others sunk forthwith. Children, as will be obvious, resisted

the drain worse than adults. In Paris, out of five thousand or so affected, two hundred and four lived from one to six hours; six hundred and fifteen, from six to twelve; three hundred and ninety-two, from twelve to eighteen; eleven hundred and seventy-three, from eighteen to twenty-four hours; eight hundred and twenty-three, from one to two days; five hundred and two, from two days to three; and the remainder, three days and upwards. *

Examinations after death have not proved satisfactory; dissections were multiplied in vain. Broussais, in his treatise, asserts that cholera is inflammation of the gastro-enteric mucous membrane. I carefully examined six or eight subjects, and could trace nothing but the usual results of intense congestion in the brain, thorax, spine, and abdominal viscera, all the veins of which were gorged with viscid black blood. In other respects, the body exhaled the disgusting odour perceptible during life, and the cavities of the heart were filled with coagula. Microscopic and chemical analyses of the blood and other fluids have been made by Donn , Wagner, Hermann, Wittstock, Rose, Thompson, Christie, O'Shaughnessy, and Clanny; but it is not by means of the scalpel, the balance, or the test-tube, that we can determine the nature of the disease. The whole system, in fact, is shaken and shattered; the intestinal mucous membrane drains the blood, which ceases to be arterialized, of its serum; spasms affect the voluntary muscles; animal heat is not maintained, and livor spreads over the surface. The kidneys cease to act, for the blood is already drained; and for the same reason, I conceive, there is no longer a secretion of bile; yet the functions of the brain, notwithstanding the circulation of dark blood in the arteries, and the intellectual faculties, often remain intact almost to the last. Patients seem to perish rather from the shock than any organic change. As the serous discharge must carry off many of the saline ingredients of the blood, so Clanny, Lecanu, and Stevens, have demonstrated the fact. Rayer shews, that this fluid is less oxygenizable in cholera; while Davy and Barruel have proved that the air is expired without change. Some have supposed, that the preliminary stages are mere precursors of the fever already described; this, however, is occasional, not constant. All attempts at explanation on the supposition of the circulatory, nervous, or secreting systems, respectively, being affected, have signally failed. The most probable consists in looking on it as the result of a specific poison, whose nature and origin, so far, are unknown.

Numerous predisposing causes operate in this, as in other diseases. In India, officers were less frequently attacked than privates, Europeans than natives, Mahometans than Hindoos, and, among these, the pariahs most. East India rice or paddy, is very inferior; but, to ascribe cholera to bad rice, as Tytler has done, is an error. Cholera spreads among the poor, the ill-fed, and the over-worked: but the crowded encampment, narrow ship, squalid and dirty dwelling, are its principal seats. It has no abode in the houses of the opulent; and short of physical misery and distress, I emphatically affirm, it could not ravage, as it has done, either the Eastern or Western world. Troops, as Orton and others state, are much more subject in camp or on march, than in quarters; so much so, that they have rarely moved through India, of late years, without being attacked. A marching regiment

might be seized in a morning, and terrible ravages committed ere night. A band at one station would experience great loss, while another, at a short distance, escaped. The first cases in the army under Lord Hastings, says Kennedy, excited little alarm; they soon, however, spread: Europeans and natives, fighting men and camp followers, sank helpless in its grasp. Of the former, seven hundred and sixty-four, of the latter, eight thousand perished. In tents, the heat is most oppressive; and the scrota of the men, a sure sign of exhaustion, become lax and pendulous. The weak and cachectic, says Scot, childbearing women, and those exhausted by abuse of mercury, were very liable. Table, and other excesses, exposure to wet and cold, exhaustion, and mental anxiety, all prove exciting causes. Repeated instances are given, by Parisian practitioners, of the supervention of the disease on sexual intercourse. The origin of cholera is unknown: all we can say is, that it arose at Jessore, not far from Calcutta, and thence spread over the civilized world. It is connected by some with the overflow of the Ganges in August: it is also stated, that, for some years before the first epidemic in 1817, the rice harvest was damaged by rains. In India, the disease seemed checked by heat; but, in Europe, it prevailed alike through heat and cold. It rarely penetrated mountain recesses; yet it ravaged the table lands of Iran, four thousand feet high, while the Neilgherri escaped. Low, damp, dirty situations, were its favourite haunts; ground floors, rather than lofty elevated apartments. Ships have laboured under the disorder; but never, it is said, without previous communication with affected shores.

I have witnessed numerous instances, apparently so confirmatory of the contagion of cholera, that I cannot hesitate to subscribe to it. If there be any other sources of its propagation, and I shall not deny that there are, we are unacquainted with them. However this may be, its spread is limited, and, to a certain degree, regulated by individual susceptibility and predisposing influences. When these are numerous, the disease, every thing else alike, is proportionably frequent. Kennedy, a contagionist, speaking of Calcutta, says, the native town is made up of miserable lanes—narrow, dirty, and unpaved; while the dwellings consist of low huts, constructed of mud, mats, and bamboo. Barely subsisting on a meagre diet of rice, the poor, often labouring all day in the sun, return exhausted and fatigued to a space in which fresh air is a stranger, and are attacked by cholera in hundreds, of which a large proportion is swept away in a few hours. Neither the contrary monsoon, observes Ogilvy, nor the insular situation of Bombay, exempted it from an attack. That cholera is not interdicted by apparently cutting off the communication, the triple cordons of Austria and Russia amply prove. It is matter of notoriety, however, that the disease affects populous centres and leading lines of communication. By a singular capriciousness, places directly in its route would be passed over, while others, remote, were assailed. Certain localities escaped, or would be seized upon afresh; while spots, exempt in the first instance, were affected subsequently. Like other great epidemics, its course, in the main, was from east to west. The generality of Indian practitioners are averse to the doctrine of contagion; many, however, are otherwise. Among the latter, Mr. Coats avers, that the disease is contagious, but that some peculiarity of constitution is required to

enable the poison to act. Did it result from a distempered atmosphere, it should spread with some regularity; whereas, it travelled in lines along the post-roads, and seemed to require a succession of subjects for its propagation. Instance after instance is on record, of persons labouring under cholera coming to a given locality, whence the disease has forthwith extended. Again and again I have known attendants on the sick—those who washed or watched the remains of the dead, contract the disease. This, with rare exceptions, was the fate of the nurses, porters, and servants of the hospital under my charge. Occasionally, however, persons under every circumstance of exposure, escaped in one instance, to grow ill in the next.

An important particular connected with the prognosis of cholera, is, that well-fed persons less readily contract the disease than the poor; but, as in the instance of fever, when they do contract it, are much more apt to die. Such, as already observed, do not usually become cyanized, but, perhaps, retain their complexion, heat of surface, and regular pulse to the last. In some, indeed, the pulse disappeared to return with fallacious promise before death. It was remarked in India, as well as here, that apparently dangerous cases, with violent purging and vomiting, were, in reality, far less so than low and deceitfully mild ones, in which the vomiting and purging soon ceased, with little or no spasm. It must be acknowledged, says Scot, that cholera is a disease so fraught with danger, that our prognosis is often miserably fallacious. We are not sure that on some hidden movement in the system, or some imprudence, the pulse shall not sink, and death ensue. In India, the natives suffered greatly; also those Europeans, it is alleged, who adopted their habits. The master attendant of Tellicherry, says Dr. Daun, never drank wine or spirits, nor ate animal food. He spent days in the jungle visiting the poor, giving money and medicine to the sick, had been most successful in treating cholera, and, with early remedies, thought there was little danger. This excellent person himself took ill, and, strange to say, omitted to employ his remedies in time. It would appear to me, however, that if, in such, the disease prove more rapid, it is merely from the lessened stamina of the sick; otherwise, when early attended to, it is subdued with comparative facility. There is, probably, no malady incident to our species, of which the issue depends more on treatment; yet such have been the destitution and neglect, that, according to Moreau de Jonnès, the aggregate mortality has amounted to many millions. The cypher of the mortality, it is obvious, will be regulated by the manner in which the returns are made out, as well as by the treatment. In Paris, the slightest forms received the name of cholérine, the severest that of algid cholera. The deaths in this great city, which always contains great numbers of dissipated broken-down persons, and many poor, amounted to twenty thousand. In Java alone, in 1821, four hundred thousand are said to have perished; and in India, since 1817, four millions.

Cholera is readily discriminated from all other diseases. It is curious, however, that a disease termed the English sweating fever of the sixteenth century, then subsisted, in which exhausting and fatal serous discharges took place from the skin, as in cholera such do from the mucous membrane of the bowels. *Ephamera sudatoria* was first observed on the landing of Henry VII. at Milford Haven; but subsequently

appeared five times, extending to the continent, and as we see by Gruner, committing extensive ravages. In England, the disease began with little warning, mostly in the vigorous and robust, with fever, lassitude, vertigo, thirst, delirium, and a foul stinking sweat, carrying off the subject, or terminating favourably, in four or five days or less. The mortality attendant on the *sudor Anglicus* was very considerable; the account of this affection, however, as it occurred in 1551, by Caius, is sufficiently meagre. It was incorrectly stated, that foreigners were exempt in England, and that the English were exclusively seized abroad. A similar disease subsisted in France, *suette miliare*, and *suette Picarde*, with a miliary eruption, which, as Rayer supposes, though not mentioned, probably attended the English disease. Thirty thousand, we are informed by Fouquet and Pujol, died during one epidemic, in and around Toulouse. In the malignant form, Rayer asserts that it may be fatal in twenty-four hours. Boyer describes it as coming on at night, with weakness, heat, sweating, hard full pulse, delirium, miliary vesicles, and sometimes purpura. Inflammatory affections, as pleurisy, were occasionally conjoined. Patients doing apparently well, would sometimes be seized with coma vigil or somnolentum, delirium or convulsions, and die out of hand. The disease lasted from a few days to one or two weeks. The sweating treatment, followed to an absurd extreme in England, was that first pursued in France, but not found to answer; Bellot, indeed, ascribes, not merely the miliary eruption, but the mortality to it. Fouquet changed it to occasional blood-letting, mild purgatives, ventilation, cool drink, and light bed-clothes, whereupon the mortality almost wholly ceased.

During the prevalence of cholera, the mildest diarrhœa may assume the aspect of this fatal disease; hence such is to be looked on with suspicion, and uniformly removed. In English cholera, the alvine discharges are rarely deprived of bile; and, though attended with vomiting, purging, cramps, low fluttering pulse, and sometimes death, is a comparatively manageable disease. Aretæus, as also Cœlius Aurelianus, speaks of a similar complaint in his second book, in the passago beginning, *σπασμοὶ ξυνοῦλαι μὲν τῶν ἐν τῇ κνήμῃ καὶ βραχιόνων*, or spasms arise in the muscles of the arms and legs, with bent fingers and affected head; also hiccup, livid nails, frigid extremities, and rigors. In the disease described by Sydenham, the spasms or convulsions not only implicated the extremities, but the muscles of the abdomen. What the French term *troussegaland*, was general and destructive throughout Europe two centuries back. Annesley discriminates between ordinary bilious, and epidemic or malignant cholera. Although the tendency to collapse in under-fed Hindoos be greater than in Europeans, and consecutive fever very rare, we must concede with Kennedy, Ortan, Scot, Bell, and Searle, that the epidemic disease, wherever it may subsist, is the same. Indeed, in well-fed Europeans collapse may never ensue before death; and the patient may die with a hot skin, full pulse, and determination to the head.

Practitioners accustomed to the slow-moving diseases of Europe, were, at first, baffled and confounded when they came to treat one of such fearful rapidity. Much, indeed, will depend on the zeal and onergy with which remedies are administered, and the attention which the patient receives. Here, the expectant method will not suffice; nor

will it do to prescribe with tedious deliberation, or to visit the sick at long intervals. What we do must be done promptly; if the fleeting moment once pass away, it never can be recalled. It is of the utmost importance to arrest purging and vomiting, ere exhaustion and death ensue. The former will not cease spontaneously, and if not checked by art, diarrhoea runs on to the production of fatal collapse. If we can only stop the preliminary purging, we cure the disease. For this purpose, let a couple of grains of solid opium, washed down with forty or fifty drops of the tincture, in warm brandy and water, be exhibited to an adult; to children in proportion. If the symptoms be severe, it is well to superadd, every few hours, enemata, consisting of three or four ounces of warm water, starch, or milk, and from half a drachm to a drachm of laudanum. If the medicine be rejected from the stomach, let it be repeated after a short interval; and should the disease not subside, it must be given afresh, say in two, three, or four hours, according to the emergency. Here, some judgment, and inspection of the egesta are necessary, since the excessive exhibition of opiates, as Cruveilhier remarks, and as I have had occasion to know, may induce narcotism and death, even when the complaint has otherwise subsided. The pills were made from the powder or from soft opium, of which I usually kept a portion in my pocket. When visiting, the medicines were carried along at the same time; delay is preposterous. I found a mixture, in suitable proportions, ready-made, of cinnamon or peppermint water, with laudanum, ether, brandy or ordinary spirits, very convenient in hospital practice. Punch, negus, or mulled wine, with the foregoing mixture, served to wash down the pills. To subdue gastric irritation, nothing was better than a sinapism or bit of hot flannel dipped in turpentine, and laid over the region of the stomach. When mustard was kept on too long, sores which did not immediately heal were produced; and I have seen patients go on vomiting, in whom the surface was quite raw. In full habits, in the early stages, with flushed countenance and tendency to congestion, I ordered, with great advantage, the detraction of from ten to twenty ounces of blood. To its omission in such, I would ascribe the not unfrequent occurrence of fatal visceral congestion. When the disease was not early encountered, or when the foregoing measures did not suffice, I administered from ten grains to a scruple of calomel, washed down with the opiate mixture, or with brandy punch, conjoined with forty or fifty drops of the tincture of opium. If early treated, the complaint was commonly checked by the first or second dose. Time after time, persons have been brought in with violent vomiting, purging, and cramps; yet such have been hardly bled, and swallowed their medicine, ere these troublesome symptoms abated, sleep came on, and they awoke, after some hours, bathed in perspiration, weak but well. In most cases, the disease continued in a subdued form, whereupon, after the lapse of four or six hours, the powders were exhibited afresh. In the weak, aged, or broken down, and those whose cases had been long neglected, the system would sometimes rally for a moment, and then, despite of every effort, sink irretrievably. The temperature was maintained by bottles, jars, or tin vessels filled with warm water, hot bags of salt, or an apparatus consisting of a number of half hoops, bound together longitudinally, covered with some impervious material, and

furnished with a wooden extremity, through which a tin tube passed, a spirit-lamp being placed beneath. Frictions, though they might allay spasms, could not be depended on; the warm bath was not commonly expedient. Patients, before the complaint was discovered, were sometimes mortally chilled by injudicious visits to the water-closet. A few persons, principally females, laboured under retention of urine, requiring, for a time, the use of the catheter; this infliction seemed often hysterical. The treatment in collapse was, in a measure, nugatory. I gave the usual remedies with a liberal hand, but could not boast of their efficiency. Some, however, recovered with marvellous celerity. Among others, I recollect a poor lad who had been picked up blue, pulseless, and insensible in the street. To strip, place him in warm blankets, apply the spirit-lamp, exhibit calomel, opium, and cordials by the mouth, and opiate enemata, were the work of a moment. Gradually the circulation returned, and in the morning, the young man was chatting at the fire, and enjoying the luxury of tea. He afterwards wrote, thanking me, from Chusan. I think I had about fifty recoveries from this condition; but the majority, so circumstanced, died. I have averted it, when apparently close at hand, by zinc or antimonial emetics; and have actually removed it, once or twice, when recent, by the same means. As for venesection, phosphorus, nitrate of silver, nitrous oxide and transfusion of warm water, I have tried them all with equal ill success.

A happy change in cholera was indicated by return of the pulse, renewal of animal heat, and of the ordinary aspect, a full bright eye, cheerfulness, and, above all, cessation of the unnatural, and restoration of the natural discharges. Imprudence in diet, exposure, or medicine, however, is liable to bring on a relapse, which may prove fatal. I have, known relapses a second, and even a third time, however, without this disastrous result. Patients during convalescence were sometimes troubled with griping pains in the stomach and bowels, which wine and opium, with gentle nourishment, and now and then a warm bath, served to dissipate. Aperients are necessary in this stage, both to evacuate the intestines, and induce a discharge of bile. With this intent, an enema, twenty or thirty grains of the compound powder of jalap, or a little castor oil with peppermint and laudanum, may be exhibited. Extreme care, however, must be taken to avoid bringing back the serous purging; but if, unhappily, it do return, let the patient be kept quiet, and opiates instantly poured in. I always allowed the sick to take as much drink, whey, tea, toast and plain water, as they liked; only cautioning them not to swallow too much at once. Tea and coffee were greatly relished on recovery; as, also, light soups, panada, gruel, arrow-root, and, subsequently, small portions of fowl or meat, with wine. Of course, when dysentery or consecutive fever ensued, the treatment was modified. Sloughing sores sometimes ensued; and one poor girl lost so large a portion out of her back, that three months were required to fill up the cavity.

An empirical, but very improper mode of treatment, was to give large doses of castor oil at the onset: a few also administered the oil of croton tiglium. Graves advocated the acetate of lead with opium; Fyfe employed sedative and spirituous, sometimes mustard enemata. Seidlitz recommended alcoholized warm baths; others, cajuput, mag-

nesia, charcoal, salt, soda, the chloride of potassium, and other alleged remedies. Those which I adopted were employed in India; but the system of instant unremitting attention, day and night, which I followed in hospital treatment, could not have been without its efficacy, nor was it. The operation of mercury, any more than of opium, I cannot explain; but, I know, that the results were satisfactory. The concurrent testimony of individuals, far apart, says Kennedy, gives their observations the rank of general facts, and proves that blood-letting, calomel, opium, and brandy, with the application of heat, were the grand remedial agents. Thus, Ogilvy of Bombay gave twenty grains calomel, with a drachm of laudanum in brandy and peppermint, and bled. Taylor of Panwell, and Burrell of Seroor, followed the same practice with striking advantages. Jukes of Bengal employed venesection, with calomel and opium. Robertson of Keerky adhered to the same treatment with similar success; and Gordon of Satara tells us, that when his patients were bled, they would first exclaim, that the pain in the head was gone, then that in the bowels, and, lastly, that cramps had ceased. Calomel, says Corbyn of Camp Eritch, allays vomiting, removes spasm, sends the patient to sleep, and produces moderate action in the bowels. Large doses of opium, says White, constitute the sheet anchor. Orton of Bellary offers the strongest testimony in behalf of blood-letting; and adds, where cholera is taken in time, that it is more under the control of medicine than any other dangerous malady. Train of Ghooty, Chalmers of Tinnevely, Connel of Secunderabad, Rowan of Travancore, Annesley, Bell, and a hundred others, at home and abroad, are all in unison. The French were singularly unsuccessful in the management of cholera: their treatment, I fear, was inefficient and tardy. Willis, the popular writer, gives a harrowing picture of the condition of patients in the Hôtel Dieu; and asserts, that many were an hour and more, after being brought in, before they were visited.

VI—VARIOLA, SMALL-POX.

THIS disease has been described and known to writers for about a period of twelve hundred years. Rhazes is the first; but he refers to Aaron, who practised at Alexandria two hundred years before. It appears to have been diffused over Asia, coincident with the extension of Mahometanism, in the seventh century, and, subsequently, throughout Europe with the invasion of the Saracens. Small-pox, as well as the practice of inoculation, are said to have subsisted in Asia from remote antiquity. Speculation, as to its origin, is wholly at fault. All we know is, that, from the siege of Mecca, in 569, to the present day, it has continued its course with variously-modified destructiveness. Civilized and savage nations have alike been prey to its violence; nor is it any small addition to the evils with which our race, doubtless for wise purposes, has been appointed to struggle. As the disease assumes a mild or aggravated form, so it is termed distinct or confluent; these two, however, may run into each other by insensible gradations. Small-pox is ushered in by a premonitory fever, which does not differ

very much from that which attends the onset of the other exanthemata. Loss of appetite, spirits, and strength, with rigors, flushings, and, finally, decided reaction, are among the symptoms which ensue. Gregory particularly adverts to pain in the back, and Sydenham to convulsions; but these last are unusual. Huxham speaks of sneezing, Burserius of diarrhœa, as among the prodromata. In most cases, the eruption comes out on the third day of the fever, and about fourteen after the infection: Gregory fixes it at forty-eight hours. Occasionally, the eruption is not seen till the fourth day, and, according to De Haen and others, even later. In a few instances, a duplicate fever and duplicate eruption are said to have been witnessed. Secondary pustular syphilis sometimes appear in this way, and may have been confounded with small-pox. There is no connexion, as averred by Sydenham, between the duration of the initiatory fever, and character of the subsequent disease. Though the severity of one, however, be in some measure a criterion of that of the other, we cannot, with certainty, say whether the disease will be distinct or confluent. Small-pox has been said, during epidemics, to ensue without the eruption, *variola sine variolis*; but this, I suspect, is a nosological quiddity. The face is first affected, then the trunk; the upper, then the lower extremities; and the pustules arrive at maturity in the same order, so that four or five days may elapse from the bursting of those on the face, before those on the feet come to the full. They are proportionably more numerous on the countenance; so that, of the gross amount, one fourth or one fifth are congregated on this small surface. Minute red papulæ or pimples, rising above the surface, are first visible; these are subsequently transformed into vesicles, with a central umbilical depression; and, eventually, into full-formed acuminated pustules, with interstices more or less inflamed. The eruption may be completed in the space of twenty-four or thirty-six hours, sometimes longer. It is rarely matured before the seventh or eighth day: the pustules which, as Sydenham observes, are largest on the hands and feet, successively burst, dry up, and scab; then, falling off, display cicatrices of various degrees of depression—in the first instance of a reddish brown aspect. By the end of a fortnight, the skin, though still highly injected, is free; the peculiar odour connected with the complaint has ceased, and its power of propagation, in a great measure, neutralized. Gregory speaks of pustules undergoing, in many cases, a grouped or crescentic arrangement; but this I have not witnessed. With the outbreak of the eruption, the preliminary fever disappears; but, in the confluent form, it either continues, or in the advanced stages, is greatly aggravated. Here, the papulæ are very numerous, and the subsequent pustules run together, forming large flattened masses. This is one of the most severe and dreadful diseases to which the human frame is subject: the hands are swelled, the face also, which resembles a hideous, pallid mask; the eyes are closed, while the eruption stops the nostrils, invades the buccal membrane, pharynx, and even the trachea, margins of the anus, vulva, and hairy scalp. In some instances, the pustules run together on a limited surface—an extremity, for example; in which case, the constitution is not affected to the same extent. Midst all this loathsome infliction, I have seen the skin, wherever there was a vacant

space, covered with petechiæ and vibices; and I have known the mother to abort the blighted offspring she was shortly to follow to the tomb. Indeed, the fœtus is often affected; and either prematurely expelled, or undergoes the periods of the disorder, before birth. The pustules of confluent small-pox more frequently implicate the cutis; hence the disfiguring seams and pits which those who escape bear with them through life. In some instances, the face has much the aspect of having been indented with innumerable peas. Confluent pox is often attended with salivation in adults, diarrhœa in children; but the most serious supervention is secondary fever, which comes on about the period in which the pustules maturate. I have seen it attended with great prostration and sanguineous discharges. The sub-cutaneous cellular tissue, and sometimes the superficial glands, are extensively implicated. Abscesses, also cerebral, pulmonic, pleuritic, and ophthalmic inflammation, are conspicuous among these results. Andral notices laryngitis, Gregory deposits in the joints, and gangrene of the genitals. The numbers of those whose powers of vision were destroyed was distressing to witness. In advanced cases, with great debility, there is sometimes threatening, occasionally actual sloughing of the back and sacrum. As the skin is extensively involved, so a species of constitutional disturbance, analogous to what we find after burns and scalds, and equally destructive, is adverted to by different writers. Some estimate the pustules in confluent small-pox at many thousands; but it would be difficult to reckon the amount. As for the union of variola with measles, whooping-cough, and scarlet-fever, it is adverted to by authors, but I never witnessed it. There is a species of chicken-pox, or small-pox, I cannot say which, the umbilicated pustular varicella of Rayer, which has a huge resemblance to variola; and which, even on the retrospect, I feel unable to discriminate. Systematic writers speak of anomalous, gastric, nervous, typhoid, septic, malignant, pestilential, and other forms of small-pox, to which I need not here further advert. As might be expected, so serious a disorder awakens some morbid tendencies, and creates others; hence, scrofula, phthisis, debility, chronic ophthalmia and otitis. Rayer and Gendrin have recorded anasarca and coagulable urine. A few instances, however, are related in which individuals were freed from previous disease.

The morbid anatomy of small-pox, like that of other specific maladies, is unsatisfactory; traces of different contingent, inflammatory conditions, among others, of the tracheal and broncheal lining, pleuritis, and pneumonia, will occasionally be discoverable; also, internal congestion, softening, and discoloration of the brain and membranes, serous and sanious effusion into different cavities. Tanchon talks of inflammatory injection and thickening of the lining membrane of the heart and arteries; Mead, Blane, and Rostan, relate extension of the pustular eruption to the internal mucous surfaces: Rudolphi denies this; but, in a paper on the subject, *Einiges über die Verbreitung der Pocken auf die Schleimhaut innerer Organe*, by Rust, in the *Medicinische Zeitung* for 1834, it is distinctly asserted, that pustules were detected on the intestinal, and, more especially, the bronchial lining. As for the anatomical element or phlyctidium of variola, it is confessedly the cutis. Here, also, or on its surface, is situated that minute portion of decayed cellular tissue, looked on by some as a new

product, and termed by Hunter the variolous slough. Of the causes of small-pox, contagion apart, we are wholly ignorant: it has been referred, without any reason, to the camel; but why not to the cow or the horse, the known fountain-head of a cognate affection? Yet, if so, why the aggravation which the disease displays? Small-pox is communicable by contact, as well as by the inspiration of infectious emanations. It may, likewise, be transmitted through the intervention of fomites, or the matter of the variolous pustule. Gregory thinks the disease capable of reproducing itself even before the eruption; but I may observe, that, in a family of vaccinated children, who were exposed to the effects of confluent small-pox, the young people did not contract the modified disorder till the heavy effluvium, arising from the maturation and bursting of the pustules, had filled the house. A very few appear insusceptible of the contagion of small-pox. A sea-captain, who had charge of a number of variolous passengers, assured me, that he never had the disease. Some escape at one time, and become affected, perhaps in very advanced years, at another. Foderè mentions that his father-in-laws' family, on both sides, had never taken small-pox; and that, in the course of a long life, with every possible exposure, he had enjoyed entire immunity. Huxham and others, relate parallel examples, but Gregory is sceptical. A curious anomaly, which, however, should be received with distrust, is that of contracting the disease twice or oftener. Grattan relates a case; I saw one adverted to while turning the pages of Paracelsus; it is notorious, that Louis XV. died of a second attack, though seamed and marked by the first: but one of the most remarkable instances is by Favart and Robert. It was indeed urged as an objection to inoculation, that persons after it contracted the disease afresh. As to variolous epidemics, I know not how we can connect them with the state of the air.

Small-pox, when the eruption is well developed, is easy of diagnosis. Plague, pemphigus, secondary syphilis, lichen, rubeola, and varicella, are diseases which authors enumerate as likely to be mistaken for it. The syphilitic eruption may be characterized by pimple, vesicle, and pustule, in succession; the fever, however, is variable and uncertain. As for lichen, there is an interval of twenty-four hours from the rigor to the outbreak of the eruption; in measles, again—and we are indebted to Sydenham for the distinction, about seventy-two. The papulæ of small-pox are harder and more distinct than those of measles; they are also redder, and, in my opinion, more evenly diffused. The disease most likely to be confounded, is varicella or chicken-pox, itself a febrile disorder, propagated by a specific poison. It is, however, infinitely mildor, although I have seen it attended with very smart fever, and sero-purulent vesicles, which left a deep indent or pit in the cutis. Epidemics of varicella rarely subsist without the prevalence of more or less variola. Eichhorn, Thomson, and Rayer, include the former among the varioloids or diseases of variolous origin. This last writer divides the disorder into pustular, papular, and vesicular varicella. The first he subdivides into umbilicated, globular, and conoid, marked by distinct red elevations, with a rose-coloured areola. On the second day, the tops become detached, and a drop of transparent fluid is discernible. These increase in size, and become firm, white, and opaque, which Rayer ascribes to the presence of a kind of false membrane,

sometimes, but not often confluent. Crusts eventually form; and as there is rarely true suppuration, so cicatrices are seldom observable. Pustular umbilicated varicella, says Rayer, differs only from distinct small-pox by the absence of secondary fever, which, however intense the eruption, is never witnessed. I need not repeat what I have already said, or describe the cause of this affection, so analogous to, if not identical with, small-pox. Inflammation of the larynx or trachea is not seen in this disease, but pustules are sometimes visible on the mouth and genitals. As for conoid and globular pustules, they are commonly mixed up with the others. This disease attacks those who have already had cow-pox or small-pox. In the variolous epidemic at Marseilles, in 1828, Favart and Robert relate, that out of thirty thousand vaccinated persons, two thousand contracted false variola, and a few the true disease, of whom twenty perished. Out of two thousand persons who previously had the natural small-pox, twenty contracted the reigning disease, and four died. Of eight thousand non-vaccinated individuals, four thousand took small-pox, and a thousand died. If the contagious principle of variola, says Rayer, act on persons little disposed to its influence, pustular varicella is, perhaps, induced, and may thus be experienced several times; it may even develop itself, though it will rarely do so, by inoculation, in persons who never had small-pox, and who were vaccinated without success. Dugat and Lafont Gouzi, it appears, have produced true variola by inoculating with chicken-pox matter. In the epidemic above adverted to, it is even mentioned, that a vaccinated youth contracted pustular varicella after visiting the remains of his cousin who died of small-pox; at the same time, a non-vaccinated young man took well-marked small-pox from a brother labouring under pustular varicella. In the first week, as I said before, there is no way of distinguishing pustular varicella from small-pox; it has the same multilocular structure; afterwards, indeed, the absence of secondary fever, of suppuration, and of cicatrices, establishes the distinction. The scabs, according to Lüders, dry up more promptly; in fact, they are gone by the twelfth or fourteenth day, whereas, in small-pox, the pustules become white and more developed; the hands swell, then the face; the skin in the intervals is red, and the constitutional disturbance is more or less intense. In confluent variola, the difference is still more marked. Varicella is rarely fatal. A few instances have occurred to French practitioners of pustular varicella procuring immunity from small-pox, but, as Rayer observes, it is not to be compared, in this respect, with cow-pox or variola. Conoid pustular varicella, and globular pustular varicella differ from the foregoing, as their names import, by the different aspect of the eruption, and by the greater severity of the initiatory fever. Both have been transmitted by inoculation; the first, by M. Fontaneilles. Swine-pox, stone-pox, horn-pox, silaquose-pox, crystalline-pox, and hives, are among designations received by the foregoing, and the two following varioloids. Papular chicken-pox varies from the rest only from the circumstance of the elevations being arrested or remaining stationary in the first stage. Vesicular chicken-pox is that which commonly receives the designation, and is most frequent. The eruption is usually preceded by slight fever, from twelve to eight and forty hours in duration; rarely, though, I have seen it otherwise, of such intensity as to confine the child or youth to

bed. On the first day, there are red, superficial, somewhat irregular spots, which, on the following, are converted into small limpid vesicles. On the fourth, these assume a straw-colour; on the fifth, they wrinkle and dry up; finally, the small crusts rub off and disappear. Vesicular chicken-pox is slightly contagious; Rayer alleges that it may engender variola, and conversely. In a very few instances it has been seen confluent. The treatment consists of mild aperients, diluents, and low diet; and children, to whom it is almost wholly confined, should be prevented from tearing themselves. As may be supposed, chicken-pox, in any of its forms, rarely procures exemption from variola.

Distinct small-pox, though sometimes fatal, is attended with little comparative danger, but it is far otherwise with confluent. Diarrhœa, bloody discharges from any of the emunctories, and, more especially, convulsions, to which some add sweating, are very unfavourable. Flat, doughy pustules, running together on the face, confluent on the rest of the body, with dark livid areolæ, petechiæ, and vibices, closed eyes, extreme oppression, and dyopnœa, yield a bad prognosis. But, if subsultus tendinum, low muttering, delirium or coma, small rapid pulse, involuntary stools, eschars, with an offensive cadaverous stench ensue, there is little prospect of recovery. Every thing else alike, infants and aged persons, incur the greatest risk; childhood and early puberty appear the most favourable periods. Women, far gone in pregnancy, though examples to the contrary have been given by Heberden, rarely escape. The most hideous and appalling aspect of the disease is, when it appears under these circumstances, entailing, as it almost always does, abortion. In other respects, as Van Swieten observes, women incur less risk than men. Dysuria is considered unfavourable by Bursarius, who, with Huxham, Morton, and Sydenham, is very full on the prognosis; as, also, the absence or cessation of the customary swelling of the hands or face. Since its first introduction, the mortality occasioned by small-pox has been prodigious; Lettsom estimated the annual loss in Europe, and he was under the mark, at two hundred and ten thousand; while Bernouilli affirms that fifteen millions must have perished in the gross. The wild tribes suffer dreadfully; and when it assails one of them in Africa or America, it is apt to exterminate. I was feelingly reminded of this on the coast of Africa, when present at the exhumation of a multitude of human bones, the remains of perished masses. In England, forty thousand went off annually; in Prussia, twenty-four thousand were destroyed in 1796; in Paris and London, respectively, so late as 1825, considerably more than a thousand, and in the epidemic of 1796, in this last-named city, three thousand five hundred; in Russia, it is averred, two millions were swept away, on one occasion, within the year; while Greenland and Iceland have been more than once depopulated. Small-pox always entered for a heavy item in the bills of mortality; and Haygarth estimated that half the deceases of children below ten, were owing to it. Death may take place from the date of the eruption up to three weeks or a month. Out of one hundred and sixty-eight fatal cases, extracted by Gregory from the records of the small-pox hospital, in 1828-9, it appears that thirty-two perished on the first week, ninety-nine on the second, twenty-one on the third, and sixteen on the fourth. The greatest number, or twenty-seven, died on the eighth day.

It cannot be denied, that treatment goes for something; yet, when we consider the frightful mortality incident to natural small-pox, even under the most careful superintendence, we can hardly avoid concluding, inoculation and vaccination apart, that it has apparently little influence on the cipher of the mortality. As small-pox commences, and is often attended with great constitutional disorder, it becomes a question how far bleeding, and other general measures, are advisable. I have myself employed bleeding in the incipient fever of confluent small-pox, as it turned out, and, apparently with advantage; but it is a measure to which I would not indiscriminately resort. Robust and vigorous adults, stout plethoric children, are the only subjects who will bear or require it. If it do not avert after complications, it appears to moderate their violence; and is, at any rate, either locally or generally, expedient in opthalmic, laryngeal, tracheal, thoracic, or cerebral inflammation. Short of diarrhœa, and sometimes sanguineous discharges, the abdominal viscera are, in a great measure, exempt from the effects of variolous poison. Purgatives, therefore, it is generally agreed on, may be resorted to in moderation, daily or otherwise, as the case may require. It is necessary to guard against the tendency to diarrhœa in children; and, should calomel be employed, to ptyalism in adults. The aperients made use of in continued fever will answer very well here; they should all be given in guarded doses, and of a mild description, more especially during the secondary fever. Plain drinks, as water, toast-tea, imperial, lemonade, and the like, with sufficient ventilation, diminished light, and a moderate temperature, answer best. The heating regimen, warm rooms, and heaps of bed-clothes, have gone for ever into disuse. Zealous cleanliness must be observed; the linen should be often shifted; the body, when necessary, sponged with tepid water; the hair, in all cases, cut close; and every excretion speedily removed. Sydenham long ago adverted to the more frequent recoveries of the poor; and, certainly, with equal attentions, they do more readily escape from this severe disease. In the advanced stages, when the fever has declined, the patient will require more clothes and greater atmospheric warmth. Here the greatest care, skill, and attention, are required. Chicken-broth, sago, panada, and jellies, will be required: De Haen advises a second bed. Should diarrhœa ensue, opiates, in sufficient doses, must be had recourse to; and, in the event of great prostration and debility, wine is our sheet-anchor: *in variolis, nigris confluentibus*, says Huxham, *bibendum aut moriendum est*. I recollect the case of a boy in confluent pox, with subsultus, black involuntary stools, unconsciousness, closed eyes, plugged-up nostrils, gasping, cold extremities, a face like dirty putty or dough—in which, by sitting by the bed all night, and supplying opiates and wine as the pulse flagged, I had the satisfaction to ensure complete recovery. As for local treatment, some have recommended the pustules to be opened, a practice that is attended with no success. Huxham, and others of his day, aver, that warm fomentations draw them to the feet. Why, indeed, they should preponderate as they do, on the face, it is impossible to say. Canterization, though employed by Velpeau, were it generally practicable, promises no more success than does evacuation; it seems, however, to arrest development. The popular practice is to smear with oil or cream; while care is taken, by confining

the hands or otherwise, to prevent the pustules from being prematurely lacerated. As to females, it is right, as Naumann observes, to reassure them on the score of their good looks. It was stated by Larrey, at a meeting of the French Academy, that M. Legrand, at his instigation, had applied gold leaf, by means of a little gum, to the face. This practice, which the former found prevalent among the higher classes of Egyptians, was, it is asserted, perfectly successful in preventing the development of pustules on all the surfaces over which gold-leaf had been laid.

Small-pox, it is of vast interest to know, is so modified by its artificial introduction into the system, as to become greatly mitigated in severity. In this form the eruption is limited, distinct, and bears the title of inoculated, in contradistinction to natural small-pox. To Lady Montagu, in 1717, are we indebted for the introduction of the practice from Turkey; and it is alleged, that it existed for ages in the East. This heroic woman had her children operated on, an example followed by the Princess of Wales and others. It was not, however, till some years after, that it obtained general currency, to which the powerful sanction of Mead probably largely contributed. As patients were not always at first judiciously operated on, nor sufficiently isolated after the disease had been contracted, the result was, that in this country, as well as in different parts of the continent, Russia and France in particular, variola, owing, it is averred, to the multiplication of so many foci of infection, made a rapid, and, indeed, destructive progress. For, although small-pox assume a very mild form when thus communicated, it is capable of propagating it in the severest. It was not until the practice had fallen into the hands of the brothers Sutton, Daniel in particular, subsequently into those of Dimsdale, that it was improved and perfected, so as to be divested of most of the previously attendant inconveniences. The planters of South Carolina introduced and followed it themselves with great success. Speaking of seventy-four persons who had undergone the operation, Dr. Watson observed, that none of them were so far indisposed as to occasion the least anxiety for the event; no pustular outbreak closed the eyes, nor were any even confined to bed. The mortality of variola per insitionem, is small indeed: at the inoculation hospital, Gregory informs us, the deaths were only three in a thousand; whereas, in wards set apart for the casual disease, they were, and continue to be, three in ten. For the first day or so after inoculation, no change is visible in the puncture, or evident in the system; afterwards, an areolar blush comes to surround a small vesicle, while stiffness and soreness in the axilla indicate the action of the poison on the absorbents. On the eighth or ninth day fever ensues, followed by a few scattered papulæ, perhaps mixed with a rose-coloured efflorescence; the primary vesicle, also, changes its character, and scabs about the time the pustules are ripening. On the whole, the symptoms are mild, and yield complete immunity in after life. The method followed, consisted in inserting, by means of a lancet, at one single puncture, a small portion of variolous matter, beneath the cuticle, at the insertion of the deltoid. Some even went so far as to make incisions down to the cellular tissue, through the cutis; but this was afterwards reprobated and suppressed. Daniel Sutton reduced the period of the preparatory

regimen, consisting in low diet, and occasional purges of calomel and antimony, from a month to a week. The great benefits accruing from this, were followed up during the persistence of the eruption, by exposure to cool air, cold drink, and a very sparing allowance of food. Indeed, with the precautions here adverted to, intercurrent maladies apart, I hardly see why there should be any deaths at all.

Towards the close of the last century, the attention of the profession was drawn by Dr. Jenner, of Gloucester, to the immunity afforded by a disease which was accidentally, and might be purposely, transmitted from the udder of the cow to the human subject. It must be observed, however, that there also subsisted a disease in the foot of the horse, the matter from which was possessed of similar properties. This, termed grease, has been assumed to be the primary affection; but, contrary to the received opinion, I think it likely that horses' heels were impregnated by cow-pox matter from the hands of milkers. I am the more inclined to this view, from the circumstance of cows, in a great variety of situations, and attended by persons in no way connected with horses, having laboured under cow-pox. Be this as it may, the matter of cow-pox introduced into the system affords immunity more or less perfect, from subsequent variolous attacks. After the insertion of vaccine matter, the virus may remain a few days stationary, more especially when dried lymph has been used; more commonly, a small red point is observable on the second or third day; by the fifth or sixth, it is converted into a regular multilocular vesicle, which, on the eighth or ninth, rarely so late as the tenth day, is distended with lymph, of the diameter of a pea, and of a greyish, pearly aspect. About this period, an irregular erythematous blush, or areola, forms about the base of the vesicle; the arm swells, sometimes very considerably; there are local pain, uneasiness, and more or less slight constitutional disturbance. Recent matter is greatly preferable to the dried, which often fails. It is introduced by means of a clean lancet loaded with it, and inserted obliquely, about a line's breadth or so, into the cuticle. The insertion of the deltoid, or leg, the skin being held tense by the finger and thumb of the left hand, is preferable in girls, with boys it is immaterial; in other respects, there should be more than one puncture, so as to leave one untouched at the period of taking a supply of matter. It is a precaution to keep the little cut uncovered till it dry up; and the child should be carefully prevented from lacerating, or otherwise injuring the vesicle during the period of ripening. If this take place successfully, the vesicle arrives at its height, the blush becomes of a dark hue and disappears, a portion of lymph oozes out, and, drying up, is converted into a scab, which, after some days, falling off, displays a cicatrix with as many depressions as there were cells in the vesicle. Cow-pox lymph is preserved and transmitted to a distance between small squares of glass, on the ends of bone points, in capillary tubes, hair pencils, any thing, in fine, that will safely retain it. When dried matter is employed, it is usually moistened by breathing on it, or holding it over warm water.

Jenner, in his first announcement, was not so sanguine, relative to the prophylactic efficacy of vaccination, as he afterwards proved; indeed he did not hesitate to affirm, that the practice, beyond controversy, would lead to the annihilation of small-pox, the most dreadful

scourge of the human species. This brilliant prospect, unfortunately, has been anything but realized: destructive variolous epidemics have not only ensued since the introduction of cow-pox, but numbers of the vaccinated, contrary to the expectations so sanguinely held out, have taken small-pox, often in the worst form. Indeed, I am called on to state the fact in distinct terms, that a greater proportion of vaccinated persons have died of small-pox, than of those who have been inoculated at the time inoculation was practised. Hence the inference appears clear, that unless the benefits attendant on vaccination be further improved and perfected, it would seem preferable to resort to inoculation afresh. This practical problem has yet to be solved; that it will be so in the affirmative, I devoutly hope. For, granting equal immunity, cow-pox, as exposing no one to the risk of infection, is greatly preferable to inoculated small-pox. One curious and hitherto inexplicable feature in the cow-pox affection is its inequality. Some, perhaps the majority, are most unquestionably protected, while others receive a partial immunity, or none at all. What this difference depends on, though many causes have been assigned, no one, hitherto, has been exactly able to discover. At the beginning of this century—and similar announcements have subsequently been made, Jenner alleged that out of six thousand vaccinated persons, the majority were inoculated, and afterwards exposed to the infection of small-pox with impunity. Even in his time, there were failures, from alleged spurious pox, and other causes; but the results of vaccination at the present day, are certainly not equal to this. Either there must be some error, or cow-pox matter has degenerated. The variolous disease which ensues, if at all, after vaccinated persons have been exposed to infection, however, is commonly slight: temporary and trifling initiatory fever, a few scattered papulæ, rather than pustules, and prompt recovery. This I have witnessed, when vaccinated children were exposed to the full influence of a variolous atmosphere. Did it extend no farther, there would be small reason for dissatisfaction; but, again and again, the poor and the rich, those blooming with youth and beauty, and in the full confidence of immunity, even some who were vaccinated by Jenner himself, have been fatally smitten. There is no practitioner of any experience, who has not repeatedly witnessed occurrences of this kind; occurrences which imperfect vaccination, and other illusory causes, no longer suffice to explain.

Revaccination, every few years, would prove, it was hoped, a remedy against the occurrence of small-pox in vaccinated subjects. In a recent epidemic in Copenhagen, Otto did not find that any vaccinated persons were affected. The practice has begun to prevail to a considerable extent, in France and England. In Prussia, it has been enforced on a gigantic scale, whole regiments being vaccinated at once. Lohmeyer, in a statement in the *Medicinische Zeitung*, of the results of military revaccination in that country up to 1833, mentions, that of forty-eight thousand, taking whole numbers, revaccinated, which was done with at least twenty punctures, thirty-seven thousand presented plain traces of previous vaccination; fifteen thousand had the disease afresh; twelve thousand imperfectly; twenty-one thousand not at all. Of these last, seven hundred contracted cow-pox, being vaccinated afresh, three thousand not. Of those successfully revaccinated, fifty-four took

varicella; fifty, other varioloids; and twenty-three, small-pox. I have performed the operation in several families; some contracted the cow-pox with every feature afresh, while others did so imperfectly. Two of my own children took it a second time perfectly well. In all these cases, I used recent lymph fresh off the arm. Now it strikes one, that if cow-pox can be taken twice, it may be taken thrice or oftener; and if so, it seems evident that the parties will be liable to small-pox; that is to say, if cow-pox supervene on vaccination, so may variola. But this is a question which experiment alone can settle; and I confess I think it would be almost preferable to inoculate children after vaccination. If they did not contract variola, well and good; if they did, they would labour for a few days under a mild and tractable disease, in place of the hideous and destructive casual disorder. In an enlightened community, I see no difficulty about this; and until, by such a procedure, cow-pox could be proved to enjoy a protecting power, it should, in my opinion, be practised. Thus the gordian knot would be partially loosed, and the minds of the community eased of a world of anxiety. Independent of the foregoing, however, it is not improbable that inoculation, coming after vaccination, might produce a still milder disease than ordinary inoculated small-pox. Assuredly, in such case, every precaution that prudence and humanity dictate, should be employed to guard against the spontaneous propagation of the disease. A more plausible expedient, perhaps, than revaccination, and one which has many suffrages, and, indeed, reason and experience in its favour, is that of recurring, from time to time, afresh to the cow. In Italy, France, and Germany, this has been accomplished with no difference, it is alleged, between the effects of the old and recent stock. Mr. Estlin and others have done the same in England with, it is said, improved results. The new virus, it has been remarked, produced more decided local and constitutional irritation than the previous supply, which, doubtless, is to be ascribed to the transmission of the latter through so many different individuals. It seems very possible, after all, that the cow received the original affection from man. Sonderland of Bremen, and, subsequently, Numann of Utrecht, have produced vaccine pustules on cows, by covering them with sheets taken from patients labouring under the suppurative stage of small-pox. This went far to establish the identity entertained, but not proved by Jenner, of variola and vaccine; but it was reserved for Ceely of Aylesbury, by direct inoculation of the cow with variolous matter, to produce cow-pox in this animal, and thereby to establish the link of evidence wanting to the illustrious discoverer. Cow-pox, thus ensuing, is reproducible, by vaccination, in the human subject, and induces a vigorous disease. Whether this be capable of procuring the so much to be desired immunity, and direct inoculation or exposure to the variolous poison can be the only test, remains to be seen. In conclusion, I have to observe, that Villermé affirms the disappearance of scarlet fever and measles, in certain districts, after the introduction of vaccination; Jenner saw the removal of chronic affections of the skin after the production of the local disease; Lassere removed spina ventosa off the hand, by selecting it for vaccination; and as for myself, I tried vaccination on the sternum, in whooping-cough, but with no perceptible advantage.

VII—RUBEOLA, MORBILLI, MEASLES.

THIS well-known malady commences with symptoms resembling a common catarrh, still more those of the disease termed influenza. Morbilli is the diminutive of the Italian *morbo*; rubeola is from the Spanish *rubeo*—*lo que tiro á rojo*; terms, perhaps, respectively emanating from the schools of Salernum and Cordova. It is only of late years that measles, scarlatina, and even small-pox, have been interdistinguished. To Rhazes, we owe the first clear description of measles, as we may find by referring to Channing's excellent edition of 1766. Puchelt affirms the latent period to be from six to sixteen days. Armstrong mentions four children all attacked on the fourth day after exposure; but in another family, it varied from the fourth to the fourteenth. A week, according to my own experience, is the average period. After three or four days indisposition, consisting of hot skin, quick pulse, thirst, loss of appetite, watering, and injection of the eyes, white tongue, sneezing, hoarseness, and a peculiar or ferine cough, an eruption, at first of a light, subsequently of a dull red hue, consisting of numerous small dots, gradually enlarging, and forming irregular crescentic patches, breaks out on the face and neck, thence extending to the rest of the body. The rash is occasionally combined with papulæ and vesicles, and communicates a rough gritty sensation when the finger is passed over it. It is not till after the lapse of three or four days, that the eruption has completed its course, fading on the face to appear on the arms and body, lastly, the legs. In a few instances, the febrile insult and rash have ensued twice; occasionally the latter comes out on the trunk first. By the eighth or ninth day, the symptoms have declined, while the epidermis is detached, with more or less itching, in branny or furfuraceous particles, from the face, body, and extremities; so that by the twelfth or fourteenth day, a few superficial discolorations excepted, all immediate tokens of the disorder have disappeared. Selle and Vogel record epidemics in Berlin and Ratzeburg, respectively, in which desquamation was absent. In measles, the fever does not subside on the appearance of the eruption, but rather augments until the efflorescence have matured and disappeared. The disease, however, varies, being mild and free from risk in some cases, as it is severe and dangerous in others. Some authors dwell much on a peculiar odour. There are, occasionally, vomiting and purging at the onset, in a few instances, enlargement of the submaxillary glands. Epistaxis and uterine hemorrhage have been observed. The eyelids are swollen, so that Heberden has seen the patient unable to raise them: *interdum palpebræ adeo intumuerunt, ut per horas quatuor et viginti aperiri non potuerint*. Whole epidemics, as well as sporadic cases of rubeola vulgaris, may be so mild as not to confine the patient to bed; while in others, the disease may be attended with destructive complications. Ophthalmia, and, more especially, blepharitis, are not uncommon; the last, particularly, in scrofulous subjects. Beer has noticed iritis; and Baron signalizes meningitis and hydrocephalus. Christison has recorded anarsarca and ascites, with coagulable urine, preceded by obstinate diarrhœa and violent cough, in a lean scrofulous girl. Here the lungs were tuberculous, the kidneys granular, and marbled with yellow and

red, the labia partially gangrenous. Diarrhœa is not unfrequent; and some even advert to enteric inflammation. Measles commonly occur but once in life; yet, I witnessed a duplicate attack in a case wherein I attended the first. Morton saw this once, Rosenstein never in the course of a long practice. It is, however, mentioned by Baillie and others. What is termed *rubeola sine catarrho*, or measles without catarrh, it is admitted, procures no exemption from fresh attacks, and is therefore rejected by some writers. The black, malignant, or putrid measles, *rubeola maligna*, described by Huxham, Watson, and others, I never saw, and am strongly inclined to ascribe them to the mode of treatment. In a few rare instances, measles have been connected with nettlerash, and even, it is said, small-pox. That it has a tendency, in certain subjects, to develop a tuberculous diathesis, whether in the lungs or mesenteric glands, is too well known to need insisting on. In one instance I met gangrene after measles in the chin and under-lip of a child three years old. Huxham notices mortification of the mouth and fauces, with caries of the vomer and maxillary bones. Wood, Watson, Ferrier, and Mackintosh, record similar occurrences. Lesions after death will be conformable to the complications; some indeed affirm, that they have detected the eruption on the mucous surfaces of the intestines, trachea, and conjunctiva.

It would be useless to speculate on the first origin of measles; suffice to say, they are infectious, and may subsist in the sporadic, as in the epidemic form. The poison does not appear to act, unless in close contact; it may, however, it seems, be conveyed by fomites to a distance. Dewees is the only writer I know of who doubts the contagious nature of measles. Some are exposed with impunity at one time, who contract them at another; and when the disease runs through a family, intervals of several days may often be witnessed as to the results. Very few are exempt from measles at some time of their lives; infancy and childhood are by far the most common periods; the fœtus, even, does not escape; but we occasionally meet adults indisposed for the first time. Home and Speranza have inoculated children with a little blood from the arm of an affected person. It is an advantage to prepare the subject beforehand, while the disease, in other respects, is milder. *Morbilli per insitionem*, says Home, *ope sanguinis infecti, communicantur. Die sexto plerumque febricula sese monstrat, mitissima tussicula, sine insomnio et inflammatoriis symptomatibus, concomitante; et neque febre hectica, neque tussi, neque oculis inflammatis succedentibus.* Measles, accompanied with dangerous inflammation of the larynx, bronchial lining, or pulmonary parenchyma, are met with almost exclusively in spring and winter. Apart from this, Sydenham considers the disease most frequent from January till the summer solstice.

The prognosis in measles is usually good, inasmuch as they are commonly mild; individual cases, however, and even whole epidemics, may wear a comparatively destructive aspect. The disease is almost always more severe in winter, from the concomitance of affections of the air passages, than in summer. Repercussion of the eruption is too commonly indicative of death. The retrocession may or may not be attended with internal inflammation; and this may subsist as a concomitance, or as a consequence. Morton observes, that when malignant epidemics prevail, the fever persists, or is augmented, notwith-

standing the decline of the eruption, and may be attended with pulmonary or other inflammation. When measles prove an immediate sequence, or the converse, on other infantile diseases, as whooping-cough, scarlatina, teething, or intestinal irritation, death may result from exhaustion. When the preliminary fever is severe, the issue becomes uncertain; on the other hand, if it be mild and slight, our apprehensions will diminish accordingly. Pregnancy increases the danger: some even have been known to miscarry. I never happened to meet a severe case of measles in adults. Urgent diarrhoea, as Sydenham observes, is productive of exhaustion. A proneness to tubercles may induce apprehension for the patient's after health. Two or three times I witnessed the supervention of first menstruation, as Montgomery also records, to the great, but needless alarm of parents. I have also observed hæmoptysis, which did not subsist previously or continue afterwards. The mortality in measles, which Percival considers five times less than that of small-pox, varies with the character of the epidemic, being always moderate, so far as I have observed, in mild, warm, and moist weather.

Measles commonly require little treatment beyond gentle aperients, diluents, low diet, and a regulated temperature. To the habit of not sending for advice early in this disease, a portion of the mortality is to be ascribed; and it has several times been my lot to witness cases of far-advanced, and perhaps fatal bronchitis, arising from neglected treatment and premature exposure. I have also known many fine children destroyed by the practice of over-heating, and the exhibition of alcoholic drinks, by way of bringing out the eruption. So true it is, that discarded medical errors descend to the people, to the production of a fresh round of mischief. Multitudes are rash as they are ignorant; and the physician too often finds directions superseded or tampered with during his absence. It has been a disputed point, whether we should bleed, and how far, in inflammatory measles: Sydenham and Mead are decidedly in favour of the practice. We must not, however, forget, that the disease is a specific one; and that it runs a certain course which cannot be arrested. Some go so far as to anticipate the eruption: I have once or twice done so, even in very young subjects, with good effects; but the ordinary, and more advisable plan, is to await the complication. In winter, therefore, in fat, plethoric children, and during severe epidemics, let us be closely on the watch, so as to assail the complication on its first approach. It is needless to observe, that the bowels must be sufficiently cleared out, and a rigid regimen observed. Calomel, with a small addition of tartrate of antimony, is a useful aperient for children. Williams, indeed, objects to antimony, as tending to induce mortification of the lungs; an occurrence which I never had the faintest reason to ascribe to it. Venesection is not practicable to the same extent in rubeolar, as in specific pneumonia: the dyspnoea, indeed, is often purely functional, and the rational and physical signs must be concurrent before we venture to resort to the lancet. In other respects, the quantity to be abstracted will depend on the strength of the patient and violence of the complication. In milder cases, or when venesection has been premised, leeches, care being taken to avoid undue exposure, to the summit of the sternum, may often prove desirable. Should there be protracted hæmorrhage, a point of caustic will readily

arrest it. Matthews and Murray would apply blisters, not only during inflammation and dyspnœa, but as preventatives. Practitioners, however, are commonly satisfied to have recourse to counter-irritation after bleeding has been premised. Compound camphor liniment proves a rapid rubefacient; but, should blisters be resorted to, they must not be kept on too long, particularly in very young subjects, lest they induce superficial sloughing.

In cases of retrocession, or when the eruption does not appear at the proper period, Rayer advises us to ascertain whether there be internal inflammation, and act accordingly. If cold, undue purgation, or weakness, prove the cause, we may resort to warm bathing or fomentations; if the pulse be small and miserable, and the surface frigid, to moderate stimuli. Still the weakness, as Mackintosh observes, may be more apparent than real; hence great caution is required. Burns mentions, if, after recession of the rash, cough and dyspnœa prove urgent, death is very apt to ensue; otherwise, wine and cordials are likely to prove useful. Some advise, in addition to the foregoing, alternate sinapisms to the chest, abdomen, and extremities. Excessive diarrhœa must be arrested or moderated by small doses of black drop, or the acetated tincture of opium; remedies which, after adequate depletion, Dewees finds useful in allaying cough and dyspnœa. Should the repercussion depend on the ingestion of improper food, Hufeland properly counsels an immediate emetic. In the event of cerebral complications, leeches may be applied to the temples, and sinapisms or warm fomentations to the feet and legs. Were I to meet with typhoid rubeola, mentioned by authors, I should not hesitate to stimulate, to keep up the temperature, and supply adequate nourishment. When children at the breast take measles, let the nurse, if plethoric, be purged and live low. I have applied one or two leeches, in such cases, to the infant with advantage. As to irregular modes of treatment, Thaer, in Hecker's *Annalen*, resorted to cold aspersion when the heat of surface was great: the water was made warmer or colder, according to the temperature of the skin, and the affusion was repeated every hour or two, according to circumstances. He affirms, that out of sixty-eight thus treated, but one died; whereas, in a concurrent epidemy, eleven died in fifty-three. It was not even resorted to in mild cases with moist surface. The patients were convalescent in eight days after slight desquamation, and were then able to go out with perfect impunity. These particulars are interesting, and, if susceptible of confirmation, important.

VIII—SCARLATINA, SCARLET FEVER.

By the foregoing terms, a disease of great frequency and severity is designated. According to some, scarlatina is derived from *yskerlet*, or *iskerlet*, Arabic and Turkish words. The terms *rosalia*, *morbilli*, *purpura*, and *porphyrisma*, have also been made use of. As I mentioned before, it is only of late years that this complaint has been distinguished from measles, and even from small-pox. Like the other exanthemata, but to a still greater extent, scarlatina is exceedingly variable, being some-

times, even during the same epidemic, perfectly mild, or fatal and malignant. The throat may be severely implicated, or to an extent that is hardly perceptible; the constitutional symptoms slight or severe, and the rash present or wholly absent. Writers usually divide the disease into simple, anginose, and malignant; these distinctions however, are, in many respects, more artificial than real. Like other febrile affections, scarlatina marks its onset by indisposition, weakness, thirst, and loss of appetite; often, a well-marked rigor, followed by reaction, ensues. Sometimes the rigor is prolonged with considerable congestion, and the complaint has been designated accordingly. More frequently, however, there are nausea, vomiting, headache, burning skin, quick pulse; occasionally delirium, dyspnoea, dry throat and fauces. The tongue is white, oftener red. On the second or third day of the fever, sometimes the first, rarely the fourth, numerous small red spots, in a few instances mixed with miliary vesicles and papulae, rarely scattered pustules, break out on the face, neck, and chest; these, subsequently, extend to the rest of the body, the hips, more especially, and flexures of the joints. In some cases, the eruption, at first, is confined to the face, which swells a little; in others, the body is simultaneously affected. On the third and fourth days, the spots increase in size, while the intervals nearly or wholly disappear; the eruption extends to the mouth and fauces, the tongue with its papillae acquiring their characteristic aspect. The extremities swell, the skin becomes excessively hot, and of an intense scarlet hue, while the outer surfaces of the extremities occasionally wear the appearance termed goose-skin. Though the fever rather subside than otherwise, on the outbreak of the eruption, there are still great restlessness and uneasiness, often severe cephalalgia, and, in a few instances, convulsions. Along with these, the urine is spare and high coloured, while the symptoms are aggravated through the evening and at night. About the fifth or sixth day, the eruption begins to decline, then disappears in the order in which it began. The conjunctiva is less frequently affected than in measles: Beer has witnessed iritis. From the seventh to the ninth day, desquamation commences in small scaly portions, oftener large moulded fragments of skin. I have seen it come off the feet and hands like a glove, on a girl of eighteen, in whom the skin had been of a vivid scarlet. The nails, hair, and even warts, have been known to separate. The new cuticle remains for a time in a tender excitable state. Some describe a peculiar metallie effluvium as connected with the disease. Soreness of the throat may precede or follow the eruption; in an epidemic which I witnessed, the sore throat and eruption, one or both, were often nearly or wholly absent, while persons in the same house would be affected as usual. The terms scarlatina faucium, and scarlatina sino eruptione, have been applied to scarlatina confined to the throat. Dropsy, as Cruickshank, Wells, and Blackall have shewn, is so frequent, from one, two, three, and four weeks, after scarlatina, both mild and severe, as to incline one to the opinion of Heister and others, of its being part and parcel of the disease. It was long ago adverted to by Sennertus, Storch, Rosenstein, and others. The face and eyelids become oedematous, then the lower extremities, and, possibly, the subcutaneous cellular tissue generally. Anasarea is often confined to the feet, and is most frequent in winter, or it may be wholly absent.

Hamilton describes an epidemic in Herriot's hospital, in which purulent effusion extended to the head, chest, and abdomen; Smith and Tweedie record effusion into the joints. The chest, in Hamilton's cases, was particularly affected; inflammation of the lungs or pleura was oftener discovered than effusion. The latter, when it ensued in the pectoridium, increased dyspnoea, and added to the danger. Sometimes the swelling is so tense, that the finger hardly leaves an impression; the serum, perhaps, oozes away by spontaneous apertures. Dropsy after scarlatina has been justly divided, by Burserius, into acute and chronic; in the first, the invasion is rapid, coming on, it is said, even before the eruption has disappeared, with fever, hot surface, urine sparse and muddy, sometimes bloody, *urinæ cruentæ aut loturæ carniū similes*, says Plenciz; and should the head be implicated, coma, convulsions, and paralysis. Of sixty dropsical cases, observes Hamilton, two only, and these were slight, failed to produce coagulable urine. In the event of recovery, one or two months may elapse before all traces of effusion disappear. Out of eighty-nine cases, in 1835, in Edinburgh, Wood mentions that anasarca displayed itself eleven times. In the chronic form, the symptoms are milder, the fever is much less, while the disease subsides more slowly. It may, however, be complicated with ascites, general anasarca, and enormous enlargement of the scrotum, terminate fatally. In certain cases of scarlatina, says Rayer, especially towards the close, urine is sometimes loaded with albumen without dropsy; while the kidneys, as Hamilton testifies, are enlarged, and present the lesions which Bright has connected with albuminous nephritis, so termed. He further conceives, that the dropsy which ensues after this disease, whether in its aspect, occasional causes, abdominal, thoracic, or cerebral complications, altered renal secretion, and anatomical lesions, is identical with the dropsy consecutive on albuminous nephritis. He admits, however, that dropsical effusions may also ensue from other concomitant causes, as disease of the heart or liver. He, as well as Fischer, found the kidneys injected after death; while Hamilton expressly adverts to the white or creamy discoloration, with enlargement of the viscera.

In scarlatina anginosa, so named, inflammation of the throat is more decided. There is sometimes catarrh; the voice becomes thick, nasal, husky, and should the larynx be implicated, which very rarely happens, stridulous; while the tonsils, palate, and uvula are found, in addition, red, swollen, and inflamed. The tonsils, at times, are so enlarged as to threaten, if not to induce, suffocation. A viscid tenacious saliva keeps flowing from the mouth, and from his efforts to get rid of it, greatly distresses the patient. Attempts to swallow, occasion much pain, and food and drink often return by the corners of the mouth or through the nostrils. After a short period, perhaps a few days, a soft pulaceous matter, of a whitish, yellowish, or brownish aspect, covers the inflamed parts. Huxham, Fothergill, and others, looked on this as a form of ulceration, an error now completely repudiated. If the exudation be removed with the finger, or by means of a gargle, the surface beneath is found whole and unimpaired; the crusts, however, are soon reproduced. In scarlatina maligna, the false membrane is detached in continuous portions, while there is both ulceration and loss of substance. Scarlatina anginosa is more obsti-

nate and protracted than simple scarlatina; and is, perhaps, more apt to be complicated with, or followed by dropsy, internal otitis, pulmonary, cerebral, or abdominal lesions. Tweedio adverts to the frequency with which the serous membranes become diseased; but of this complication I have not had much reason to complain. The eruption may disappear early; it is sometimes renewed, and is not necessarily attended with remission of the symptoms.

The worst form of scarlatina bears the epithet malignant; and is characterized by a livid eruption and tonsils covered with ash-grey or blackish exudations, with eschars and sloughing sores beneath. Cynanche maligna, by Cullen; diphtheritis, by Bretonneau; *garrotillo*, by the Spaniards, from the risk of suffocation—*inflamacion de la garganta con hinchazon de las fauces*, cynanche contagiosa, ulcus Syriacum, morbus strangulatorius, *esquinancie maligne*, are among the many appellations bestowed on this affection. This dreadful malady, which has been ably described and discriminated by Huxham, Fothergill, and Withering, is marked by fever, headache, frequent, small, irregular pulse, thirst, intense pain in the neck and throat, diarrhœa and colicky pains, with, perhaps, sanguineous discharges from the mouth, ears, nose, uterus, or intestines. The throat is red and livid; the tonsils appear as if saturated with a stinking pus, and along with the posterior fauces, even the tongue, lips, and gums, are covered with eschars and burrowing ulcers; the breath is fœtid, and a sanious matter distils from the corners of the mouth. Occasionally there is foul œzena, inflammation of the Eustachian tube, loss of the ossicula, and permanent deafness. The mouth, says Foderè, often presented a series of livid eschars, emitting a horrid stench; and the patient may experience but a kind of soreness, when the fauces are occupied with ash-coloured sloughs, the uvula, palate, and tonsils being, meanwhile, nearly destroyed. The submaxillary and parotid glands, in many cases, are swelled, perhaps, from the jaw to the shoulder, so as to render the features irre recognizable, with delirium or coma, and gangrene of the sacrum and trochanters. Sometimes the complaint sets in with decided inflammatory reaction, but this too soon gives place to extreme prostration and exhaustion. Cases, indeed, mild in the first instance may lapse into this; and Parr and Underwood remark that the throat has become inflamed and ulcerated in children without their uttering much, if any complaint. Should the patient happily survive, sloughs detach themselves, the parts beneath grow clean and heal, the epidermis is cast off, and the feeble sufferer undergoes a protracted convalescence. Scarlatina maligna has of late years been rare; but the details furnished by Burserius, Sydenham, Mead, Severinus, Alaymus, and others, yield irrefragable testimony in opposition to assertions that would impugn the fact of its past existence.

Examinations after death, owing, probably, to the specific nature of the disease, do not yield results always corresponding with the severity of the symptoms: Tweedio, indeed, records cases without lesions adequate to the fatal close. Active and passive serous, or sanguineous effusions, are occasionally discovered; I have detected copious traces of thoracic inflammation; Rayer records enlargement of the intestinal follicles. Mortification of the lower extremities and lip is mentioned by Williams; also, of the rectum, pudendum, and face, by Watson;

while J. Frank and Alaymus both advert to internal gangrene. As for the causes of scarlatina, we know of none other than contagion and infection. The disease prevails during the autumnal and vernal equinoxes; it is usually epidemic, and then sometimes persists for years. Scarlatina is most frequent in childhood; but persons are by no means so certainly attacked by it as with variola and rubeola; hence, in a measure, the greater liability of adults, as well as the circumstance of many passing through life without contracting it at all. It seems equally well established that some are insusceptible of scarlatina, as that others labour under it twice. J. Frank, though much exposed, enjoyed perfect immunity. Rayer, Neumann, Blane, Binns, and Kramer, all speak of duplicate attacks; but the disease once contracted, in the great majority of instances, recurs no more. In a very few cases, scarlatina may be interrupted and resume its course. It is curious, as I have witnessed, that one child in a family will sometimes be alone affected; while at others, the complaint seizes on every member. Plenciz avers that for thirty years, the younger branches of a noble Austrian house, though on five different estates, suffered concurrently; while De Carro states that in 1825, the establishment of the English ambassador at Vienna laboured under scarlatina, though not another case subsisted in the city. Rush and Peter Frank remark, that during the prevalence of scarlatina, the sore throat, and even the eruption, extended to very different maladies, an observation that is applicable to many other epidemics. Old persons and infants at the breast are not so liable to this complaint; but there are cases of children being born with it, when the mothers, towards the close of pregnancy, had nursed individuals labouring under the disease. The elder Hildenbrand relates that he propagated scarlatina in Podolia, where it was almost unknown, by a coat he brought with him, and which, half a year previously, had been worn by a patient in Vienna.

As to the diagnosis of scarlatina, it is necessary not to confound it, which, however, is not readily done, with measles, or an eruption, termed *roseola* by English writers, *rosalia* and *Rötheln* by German. This last may complicate various febrile affections; it may also ensue alone: it has been said to be occasionally epidemic. It is most common in children, especially during dentition, constituting the tooth-rash, or gum, so named; and the epithets *infantilis*, *æstiva*, and *annulata*, have been applied by Willan and Bateman. *Roseola* is not contagious: it comes out after a few days' slight fever, in the form of a bright rose-coloured rash, in patches broader than those of measles, usually extending over the surface. Bateman has seen it confined to the head and legs, Gibert to the feet and hands. It may be contracted a number of times; and has, perhaps, in some instances, led to the supposition of repeated attacks of scarlatina or measles. Acid ingesta are said to induce it, especially in women: Gibert and Cullerier have known it to follow the exhibition of *copaiva*. The vivid hue of scarlatina is much more diffused than the dull red, rough, crescentic patches of rubeola; the rash comes out earlier, and is not marked by the catarrhal, thoracic, or intestinal affections which accompany measles; neither do we see in the latter, the sore throat, nor the anasarcaous complication which attends the former. Cullen and others, up to a recent period, looked on scarlatina maligna as mere putrid sore throat, and

named it cynanche maligna. Bretonneau has fallen into the error of describing an epidemic of scarlatina maligna at Tours, as a new disease, which he terms diphtheritis, from $\delta\iota\phi\theta\epsilon\rho\iota\varsigma$, a mistake perpetuated in several French, and some English, works. To increase the confusion, however, it has also been named asthenic croup, probably from the occasional extension of false membranes to the air passages. Naumann insists on the identity of angina maligna, *Brandige Braune*, with diphtheritis; but, strangely enough, denies that of the former with scarlatina.

The danger of scarlatina varies with the severity of the local and general symptoms; yet, cases doing apparently well, sometimes take a sudden and fatal turn. Peter Frank was called in consultation to the son of a Greek merchant in Vienna, five days ill, whose parents, notwithstanding a most favourable prognosis, could not be reassured, having lost a child similarly affected a few days previously. In effect, returning on the morrow, the child was in the last agony. Scarlatina is often very mild, so that Sydenham hardly esteems it a disease: Morton, Huxham, Withering, Fothergill, and others, afford us too many instances of its severe and destructive tendencies. I have, however, seen the mildest and most severe cases mixed up in one and the same epidemic; and have witnessed a deficient or absent eruption in cases otherwise both good and bad. The sudden suppression or defective outbreak of the rash, also its dark hue, are significant of extreme danger—*certe moriebantur*, says Ramazzini. Excessive swelling and inflammation of the tonsils, not to speak of other local alterations of structure, are ominous of evil. I have seen death in such cases, whether from inanition or suffocation, it were difficult to say, fourteen days after the outbreak of the disease. Reil, in his *Fieberlehre*, mentions a chalk-white circle round the forehead and lips, as a token of death. A livid, discoloured countenance, delirium, cold extremities, and petechiæ, portend the speedy close of life. The mere supervention of scarlatina is significant of danger; on the other hand, the local and general symptoms, neither intense nor very severe, a vivid rash, florid mucous surfaces, and lively reaction, may reasonably permit us to hope for the best. The mortality is excessively variable; being, perhaps, at one time so low as two or three per cent, at another, as in the epidemic of 1786, in London, amounting to one third of the cases. Neumann mentions, that in Saxony alone, from 1799 to 1803, forty thousand persons, mostly children, were cut off. Of six hundred and forty-four cases in the London hospital, thirty-eight proved fatal; the mortality varying from one in six, to one in forty. In malignant epidemics, the disease is early and excessively fatal. Parturient women are more liable than at other times, and incur a greater risk; an observation repeatedly confirmed by Semm at the Maternité in Paris. Indeed, women are asserted to be much more liable than men; but sex can make little difference at the period in which the complaint most commonly prevails. Weak, debilitated persons, and those recovering from other complaints, if they do not perish at the onset, are liable to sink from exhaustion towards the close. Children, during dentition, are apt to suffer accordingly. Opinion differs as to the relative severity of the disorder in young persons and adults; but, so far as I have observed, I do not find that age, in itself, makes much difference,

having witnessed mild and severe cases, equally intermixed, from two years up to forty.

The very variable aspect of the disease has induced considerable diversity of opinion as to the treatment. The incident complications, though they may be moderated, are not to be cut short by measures that would influence ordinary inflammation; and we may weaken the patient without getting rid of the specific actions which the disorder entails. Very mild forms of scarlatina often require no interference beyond ordinary hygienic precautions; but, in robust plethoric subjects, or when the excitement is great, and the local inflammation considerable, I would deplete to the extent of ten or fifteen ounces, more or less, according to the age and strength, and apply a dozen leeches to the throat. These measures will general excitement, and lower inflammation of the tonsils. In many cases, leeches alone will suffice; and, in very young subjects, I would place them on the top of the sternum, where hemorrhage is easily arrested by pressure, or the application, if necessary, of a point of lunar caustic. Leeches to the back of the neck answer very well; and I have employed cupping-glasses in the same situation with effect. Venesection, from the facility of measuring the depletion, is, perhaps, in most cases, preferable to leeching, while the cicatrices left by leeches, in the case of females, are avoided. One of the great advantages of early bleeding, when this measure is proper, is the prevention or mitigation of guttural inflammation. I saw occlusion of the pharynx and death in one individual in whom this remedy, beyond a few leeches to the neck, had not been adopted; whereas, the rest of the same family, who had all been bled, both locally and generally, recovered. Antimony and ipecacuanha, even to the extent of vomiting, are often productive of great relief. They lower the enormous excitement, and reaction after blood-letting, as well as free the throat and fauces, more particularly when tense and swollen, from viscid mucus. A couple grains of antimony, with six of ipecacuanha, may be made up into a six-ounce mixture, with a little mucilage and syrup, and taken in portions, so as to induce slight nausea or vomiting through the day and night. If vomiting take place, the portion must be given at longer intervals; and should the faucial aperture be nearly closed, with great general prostration, or much gastric irritability, it must be laid aside. In other respects, stuping the throat, and the inhalation of steam from hot chamomile tea, are productive of relief. The patient should take plenty of diluents. Purgatives, as calomel, senna, rhubarb, or the compound powder of jalap, cases of debility excepted, may be exhibited in moderation. Hamilton tells us, that one or two brisk aperients subdued the pungent heat, headache, turgescence, and quick, full pulse. Depletory measures, indeed, are more or less convertible; and when we resort to one, we supersede, in a measure, the necessity of another. Blisters are of doubtful utility: early applied, they interdict leeches; and late, they are commonly superfluous. When I did resort to them, it was after the system had been sufficiently lowered: they should be of a crescentic form, swelling towards the extremities. Cold affusions, so justly advocated by Currie, Jackson, Stiebel, Reuss, and others, are of unequivocal advantage. They have now, however, very generally given way to cold, or preferably, tepid aspersions; which, on the whole, are more

expedient and practicable. In every case, gentle nourishment and tardy exposure must follow convalescence.

I have long been of opinion, that those fatal affections of the throat in scarlatina, to which the epithet malignant is applied, may often be prevented by active, early treatment; and I have heard practitioners, who gave a preference to wine and other stimuli, speak of ulcerated and gangrenous sore throats, which, with venesection and depletion, it was not my fortune to encounter. The period for such treatment, however, quickly passes away; and the affection runs its course no longer controlled by means which, in the first instance, might have proved successful. Is it possible to say with certainty, beforehand, whether the disease shall turn out what is termed malignant? I conceive not. Assuredly, I never yet saw a case which commenced with the prostration incident to scarlatina maligna. Certain it is, however, whenever symptoms, whether late or early, appear which merit the name, from that moment every species of debilitating medication is to be rigidly forsworn. Let the throat, in all cases, however, be attentively examined; and if there be evidence of local inflammation, with full, hard pulse, let us deplete moderately from the arm, and apply from six to four and twenty leeches, clear out the bowels gently, and give a full emetic. I feel assured that, if this treatment were instituted at the very onset, we should more rarely witness the dark crusts, livid tonsils, and sloughing ulcers, which mark this justly-dreaded disease. From the moment, however, symptoms of prostration appear, all thoughts of bleeding or purging must instantly be given up, and local and general stimuli—wine, quinine, and carbonate of ammonia, resorted to. Huxham, Fothergill, and others, attached much value to the tincture of bark, combined with dilute sulphuric acid. The infusion of red pepper, acidulated with vinegar, has been praised by Stephens. Various astringent gargles are employed, likewise the chloride of soda mixed with water. Bretonneau applied locally, with a bit of sponge, a fifth part of muriatic acid in honey; this he afterwards discontinued in favour of calomel blown through a little tube, for which Miquel, again, would substitute powdered alum. Cauterization, with the nitrate of silver, is greatly preferable, and has been resorted to. Leeches and warm fomentations are employed against secondary synovial inflammation, should it occur. When dropsy ensues in the acute form, with embarrassed respiration, and hard, quick pulse, blood should be drawn; otherwise, not. I never met with a case of recent anasarca, and I have treated a great many, that I was not able to subdue by means of jalap and cream of tartar, combined with a moderate proportion of digitalis and squills. I have, however, seen troublesome ascites, as also chronic general effusion, with coagulable urine, the result of scarlatina, which ended fatally. Should inflammation or effusion ensue in the head, chest, or abdomen, the effects of treatment will be much more uncertain. Coma and convulsions have been sometimes got rid of by means of general blood-letting. In the chronic form, should the disease prove mild and free from fever, warm baths, by restoring the cutaneous transpiration, will promote recovery. Green says, that symptoms of anasarca may be almost certainly arrested by the use of the vapour bath, not to speak of the acetate of potash or calomel. In the event of depression and debility,

stimuli will be called for. Hamilton was sent for in haste to a little girl five years old, with cold extremities, pale face, livid lips, and oppressed respiration, so that he did not think she would survive the night. Copious supplies of whiskey-punch and a blister to the chest, relieved the breathing, and promoted the discharge of urine, after which she made a good recovery. Bark and other tonics are useful during convalescence; and in all cases the surface should be kept warm. As for the prophylaxis, it is most prudent, in the event of any severe epidemic, to keep children out of the way; and parents should be warned to apply for aid in time. The preventive powers of belladonna, lauded by Hahnemann and his adherents, are null. They are justly repudiated by J. Frank; and Hufeland, who at first inclined to look favourably on them, wholly withdrew his advocacy.

IX—ERYSIPELAS, THE ROSE, ST. ANTHONY'S FIRE.

THIS is a disease of considerable frequency, often great severity; and has been variously described, according to the manner of the attack and the surfaces implicated. It may be little more than a trifling and innocuous, superficial inflammation, or attended with local disorganization, and violent, if not fatal, general disorder. The eruption is commonly preceded by fever; both, however, may be consentaneous. The skin becomes hot, tense, and red; serum is deposited under the cuticle, which, subsequently, having lost its vitality, falls off in shreds. In place of coming to a close in this mild form, which has been termed resolution, inflammation may extend to the subcutaneous cellular tissue, below the fascias, and end in copious sero-purulent deposition, or even gangrene—hence, the terms simple, œdematous, and phlegmonous. When erysipelas flits from place to place, as from the upper to the lower extremities, it is styled erratic: Dewees has seen it occupy a leg, a thigh, an arm, the face, or the trunk, alternately, within four and twenty hours. It may also leave the surface, whereupon, inflammation seizes some internal organ, justifying, it has been presumed, the term metastatic. This affection usually terminates before the seventh day: universal erysipelas has been spoken of; but J. Frank thinks, there must have been an error in the diagnosis.

Erysipelas of the face, *sideratio*, *ερυσίπελας προσώπου*, is severe, often fatal. It may extend to one, more commonly both sides, and is perhaps the most frequent form of the disease. The preliminary fever is generally violent, and attended with pain in the head, sometimes delirium. After two or three days, the eruption appears on the alæ of the nose, and on both cheeks, whence it may extend to the pericranium. The scalp, indeed, may be separately affected, but not so often as the face. From red, the skin becomes livid, and is infiltrated with lymph, purulent matter, and sometimes covered with pustules and large phlyctenæ. The inflammation is apt to extend deep, and the surface communicates a brawny, occasionally, a soft doughy sensation. The lips, eyelids, nose, and indeed, the features generally, become hideously swollen; the ears tense and shining, the eyes closed, and the nostrils so obstructed, that the patient has to breathe by his

mouth. Matter sometimes burrows beneath the perieranium, and gangrene has been known to ensue. In some instances, as Rayer observes, inflammation subsides, and delirium, coma, and subsultus mark the approach of death. I have witnessed several instances of erysipaloid meningitis the eruption being unimpaired. Chomel and Blache state that they have met with all its symptoms in young, and, previously, vigorous subjects; yet, in whom, on examination after death, nothing of the kind was discoverable. The majority of cases, however, after a week or fortnight, end in resolution, in one cheek, perhaps, before the other; but some time may elapse before desquamation, whether in the form of bran, scales, or crusts, is accomplished. The salivary glands, which may become tense and swollen, probably remain so throughout convalescence. I never witnessed sloughing in this form of the disease.

Erysipelas may affect the trunk primarily, or extend to it from other parts, as the face, successively implicating the back and loins. In other cases, it proceeds from the chin to the breast, or from the shoulders to the arms, in this case not extending beyond the insertion of the biceps. Here, the fever is renewed, and the axillary, and, perhaps, the inguinal glands, swell. The mammæ of puerperal women are sometimes affected, perhaps with fatal results; Schedel has seen it destroy the skin a few days after delivery. Renaudin gives an instance of erysipelas involving the whole trunk; the patient, a woman of fifty, complained as if surrounded by flames of fire. Erysipelas beginning at the umbilicus or elsewhere, is common in infants: Billard says it attacks them more frequently than any of the other cutaneous phlegmasiæ. In the penis and serotum, erysipelas may be primary or consecutive. There is local distention, œdema, and excessive phymosis, so that the patient cannot make his water. I witnessed a case, in 1821, in the hospital St. Louis, in which the spermatic cords and testicles were completely denuded. Instances attended with gangrene are also related by Broeklesby and others. Erysipelas of the lower extremities, particularly of the ankles and calves, is popularly termed the rose; it is frequent, and from the dependant posture and swollen condition of the parts, more rapid in its course. I saw fatal erysipelas in this situation, in two cases. The first was that of a serofulous boy, who had been exposed to cold; the other that of a replete traveller, in whom it had been induced by neglected leech-bites. Gangrene ensued in both instances; in one of them up to the groin.

After death, the exterior redness disappears. Peter Frank dwells on the frequency of internal lesions; and Joseph Frank says he hardly ever conducted an autopsy in which he did not discover abscess in the ears, caries of the mastoid cells, maxillary, or frontal bones, and other morbid changes in the brain, lungs, or chylopoietic viscera. Out of sixteen children, says Billard, gastro-enteritis was visible in two; enteritis in ten; pneumonia, enteritis, and cerebral congestion in three; and pleuro-pneumonia in one. As to the anatomical seat of the disease, Laurence and Gendrin refer it to the corium or cutis; Ribes avers the existence of pus in the minute veins, as well as in the arterial and lymphatic capillaries. Few complaints, indeed, are readily confounded with erysipelas, or are attended with the same burning, scalding pain, gradual progress, uniform redness, serous elevation of the cuticle, puru-

lont deposits, desquamation, and varying seat. *Cynanche maligna*, scarlatina maligna, has been considered by Stevenson and others, as a form of erysipelas; but this last disease, as Tweedie observes, attacks the cutaneous, not the mucous surfaces, metastases to the contrary, notwithstanding. Burns and scalds, frost-bite, boils, and whitlow often bear considerable resemblance to erysipelas, but are distinguished by their casual origin. The erythema intertrigo of Rayer, from the friction of contiguous surfaces, as in the folds of the groin, hips, and other analogous situations, is common enough in children and corpulent persons. I have seen it continue on infants for months, resisting all applications, till I had recourse to ceruse dusted over the parts. Ehrenberg speaks of epidemic intertrigo on board a ship in the Red Sea. The erythema papulatum of Willan, shews itself in young persons in the shape of small red spots, from a lentil to a split pea in diameter, on the neck, face, and breast. Like rosalia, it sometimes accompanies rheumatism. Erythema tuberculatum or nodosum, presents red shining tumours, with more or less constitutional disturbance and want of sleep. I have seen it on the arms of scrofulous girls; and I attended a lady, in whom the tubercles were confluent along the tendo achilles, with redness, pain, and swelling. She suffered from its recurrence and long continuance, for years. In erythema marginatum, the patches are from half an inch to an inch in diameter. Erythema circinnatum or annulatum, is analogous to, if not identical with roseola annulata. In erythema fugax, which differs little from erythema læve, the redness is more diffused. As Bateman observes, erythema is commonly symptomatic; in other respects, Rayer speaks of chronic erythema, whether from internal or external causes, on most parts of the body. Pernio, or chilblain, is a form of erythema, from over-rapid reaction after cold, sometimes lapsing into bullæ; and, as stated long ago by Celsus, common in the feet and fingers of boys. It is readily subdued by turpentine epithems, or when these fail, by applications of the solid nitrate of silver.

The connexion of erysipelas with disordered states of the general health and derangement of the digestive organs, appears well established. We seldom witness its occurrence save in persons whose stamnia have been impaired by continued ill health, or recent injury. Some however, seem more prone to the disease than others, and a hereditary tendency even, has been alleged. Women are said to be more frequently affected than men, and infants than adults. Sudden alternations of temperature, excessive heat or cold, abrasions of surface, cuts, more especially in dissection, punctures in œdematous limbs, wounds, bites, blows, stings, acrid and corrosive applications, septic animal poisons, the ingestion of decayed hams or sausages, some species of fish, and, lastly, contagion, are alleged exciting causes. Calmeil informs us of its frequency, doubtless from their habitat, among the insane. The air in hospitals becomes surcharged with effluvia, undue moisture, and warmth; in a word, so vitiated, that the smallest wound or puncture threatens dangerous consequences. It was notorious when I attended the Hôtel Dieu, in 1820 and 1821, that the eventual success of operations owing to the causes to which I have adverted, was greatly lessened. In fact, it is a monstrous abuse to perform operations of any kind on persons, often of impaired constitutions, in a tainted or infected

atmosphere. Hard drinkers, and those of peculiar stamina, incur the invasion of erysipelas, often fatal, from a mere scratch, perhaps unattended even with temporary inconvenience to others. Of this, I have witnessed some striking instances. Many are of opinion that erysipelas is a specific, not a common inflammation—that it may prove, in a word, both infectious and contagious. Indeed, instances are brought forward by Wells, Laurence, Baillie, Pitcairn, Stevenson, Gibson, and others, apparently decisive of the affirmative of the question. Yet Frank, Andral, Chomel, and La Blache, repudiate this doctrine altogether. Among the thousands of instances which the first of these writers met with, he did not see one which argued in favour of infection; the second asserts that it will not bear examination, and that it is contradicted by observation; while the last two affirm, that it has not only found no credit in France, but that it is in opposition to daily facts.

The prognosis in this disease is greatly influenced by the nature of the attack, the age and constitution of the patient, and the treatment. Erysipelas, it has been justly observed, should never be considered trifling; since it is liable to take sudden turns, and to fly, not only to other cutaneous points, but to internal organs. It is good, says the Coan, when erysipelas appears externally; bad when it recedes: *ερυσίπελας ἐξωθεν ἐπιγίνεσθαι, χρήσιμον, εἰσω δὲ τρέπεσθαι, θανάσιμον*. Erysipelas of the head and face is more dangerous than when it affects the trunk; in the latter, than in the extremities. Simple erysipelas, devoid of œdema, sero-purulent infiltration, or gangrene, is productive of little inconvenience, compared with what obtains in forms attended with these changes or with internal inflammation. In fact, the urgent risk, when the disease affects the head, is, lest the brain and meninges be implicated; the thorax, that the lungs and pleura may be seized on; and the abdomen, that some of the viscera contained therein, may be affected. The worst of these metastases, so to speak, is from the head to the brain, including coma, delirium, and apoplexy, in adults; hydrocephalus, with its attendant features, in children. Bartholinus, however, relates an instance of erysipelas forsaking the feet, whereupon an affection of the head, with fatal lethargy, ensued. Storck met with two instances of erysipelas leaving the arm, followed by violent fever, cough, and pectoral oppression: *febris magna, tussis continua, cum pectoris anxietate*. Drunkards, under such circumstances, are more liable than others to thoracic effusion. Traumatic erysipelas is commonly more alarming than idiopathic; epidemic, than sporadic. Old persons and infants, also persons of inferior or broken-down constitutions, afford a worse prognosis, every thing else alike, than others. Fat, elderly men and women, who have lived well and taken little exercise, are bad subjects for erysipelas, as are, also, persons labouring under fever, or other acute diseases, in the close and crowded wards of hospitals. A disease, termed the holy or hellish fire—*heilige oder höllisches Feuer*—attended with fever, violent pains, livor, and gangrene, the limbs even falling off, and committing extensive ravages, has been adverted to by different historians, and is thought by some to have been erysipelas.

Some cases of erysipelas are so slight, that they do well under any treatment; others, again, so severe, that no remedy proves effectual. The results, in other respects, are variable; as we have to act on

the worn-out and debilitated, or the vigorous and robust—in the crowded wards of hospitals, or in well-ventilated, roomy, private apartments. Moderate aperients, low diet, the recumbent posture, when the disease affects the lower extremities, the arm slung, if seated in the upper, are all that mild erysipelas requires. Poor people commonly walk about, when the arm is implicated, all the time. Tepid lotions, cream, or sweet-oil, may be employed, if the patient find the pain soothed thereby, otherwise the surface may be dusted with powdered starch. Leeches, blisters, and small lancet punctures may be safely resorted to; but, in such cases, they are hardly necessary. Here, the part being previously moistened with a camel's-hair pencil dipped in water, a piece of lunar caustic, as recommended by Higginbottom, held flat, may be passed freely over, and a little beyond, the inflamed surface, with perfect safety and much advantage. Should an inflamed point escape, the caustic should be applied afresh. A little increased smarting is the immediate result; but this, after an hour or so, is followed by perfect remission of pain. The skin turns black after some days, desquamates, and leaves a rose-coloured, but healthy, surface. Like the sulphate of copper, and some other saline escharotics, it changes the diseased action, and, in fact, destroys the vitality of the part. Hence its extreme utility, as I am able to testify, not only in erysipelas, but every species of superficial sore or abrasion; but it will not answer in deep-seated structural alterations, and, when such ensue, must be refrained from.

Phlegmonous erysipelas, by Rogerson termed compound, as it involves more extensive changes and greater reaction, demands local and general depletion, in addition to low diet and aperients. If the subject be debilitated by want, exposure, prior disease, or intemperance, bleeding is inadmissible; but if, perchance, stout, plethoric, and young, the detraction of ten, fifteen, or twenty ounces, lessens local inflammation, lowers the general febrile excitement, and diminishes the probability of serious structural changes. The practice, however, if at all, must be early resorted to; it will not do to commence bleeding when suppuration, perhaps sloughing, has already taken place. Phlegmonous erysipelas of the head in plethoric, elderly subjects, is apt to prove fatal; but many such I did not see till the case was far advanced, with coma, partial or complete, and cerebral complication. But I have met with others, some of them sufficiently unpromising, whom one good bleeding from the arm, a smart purge, a saline mixture, with two grains of the tartrate of antimony to the eight ounces, and plenty of diluents, sufficed to bring safely through the disorder. The blood, in these cases, was cupped and buffed, and the relief ensuing on its detraction, most decided. The precincts of an hospital, it is to be observed, are ill calculated to display the efficacy of any mode of treatment; and the cases to which I advert, occurred in privato practice. When the parts are red, hot, shining, and tense—when the disease is early seen, and the subject young and vigorous, one tolerably deep incision, in the long axis of the limb, seldom fails to deplete the parts, and, aided by other measures, to resolve the complaint. This procedure, introduced by Hutchison, I have resorted to more than once, with every success. Laurence, however, gives the very proper caution of not allowing the hemorrhage to proceed too far, either by closing the incision with adhe-

sive plaster, tying any bleeding vessel, or placing the limb in an elevated posture. Numerous leeches, or punctures with a lancet, confer similar, but not equal advantages. In severe or neglected cases, incisions down to, or, if necessary, through the very fascias, give issue to purulent matter, and prevent it from infiltrating the cellular tissue and distending the limb. I recollect an Italian gentleman, from Palermo, in whom the incision was not in time to prevent the skin being detached, to a vast extent, over one of the loins. The pus was evacuated, but the patient died. Even in phlegmonoid erysipelas, affecting the hairy scalp, Rayer would have us divide the skin, cellular tissue, and aponeurosis, which, he says, relieves tension, and generally causes cessation of the delirium and other cerebral symptoms. When inflammation of some internal organ is consequent on the disappearance of erysipelas externally, our measures will vary accordingly. This is principally the case with regard to the head; and I have tried revulsives, turpentine enemata, calomel by the mouth, and mercurial frictions, without avail. *Melius anceps remedium quam nullum*; and we should not give up while life remains. Copland relates from Cox, an instance of the efficacy of repeated doses of turpentine and castor-oil. There were delirium, coma, and a foul, black tongue; but the subject, a woman, was only twenty-one. Infantile erysipelas, as Billard remarks, must be managed according to the complication: the nurse should live sparingly, and take aperients; perfect cleanliness must be observed, and exhaustion combated. The great mortality connected with infant establishments, shews how unfitted they are for the preservation of health, or recovery from disease.

A variety of remedies, mostly local, have been employed in addition to, or superseding the foregoing. Cold or spirituous lotions are reprobated, by some, as interfering with the regular course of the complaint; though alone hardly sufficient, this result need not be apprehended. If employed at all, the application must be constant, or the consequent reaction will do more harm than good; at the same time, the circulation of the part must not be unduly depressed. Compression is a risky procedure, and hardly to be resorted to with safety, unless, perhaps, in the hands of very judicious practitioners. Mercurial inunction has never become general; and it would be necessary to inquire, whether the instances in which it was alleged to answer, were not relieved by other remedies, or the favourable course of the disease. Should erysipelas take place in weak, debilitated subjects, or should gangrene unhappily ensue, wine, bark, and opium, according to the urgency of the case, must be had recourse to. One or more of these remedies, also, may be expedient in the after stages of attacks that had called for depletion at first. Wine and opium are commonly preferable to bark or quinine: many practitioners intermit every other mode of treatment. The bowels, if possible, must be unloaded before having recourse to these remedies; but, it will too often happen, that supplies the most liberal, of food and stimuli, prove inoperative to avert fatal consequences. Williams favours us with a number of cases, unhappily not comparative, of the efficacy of stimuli. In one of these, the face and scalp were hideously swollen; yet, five grains of quinine, every four hours, and eight ounces of wine daily, sufficed to ensure the patient's recovery. In another, the disease had the same seat, and

was attended with delirium; when the wine was reduced on the fifth day, the complaint immediately returned, and as quickly subsided on resuming the dose. Two other cases are also given of erysipelas in the leg and thigh, with great fever, tension, and swelling, the tongue being white in one, brown and dry in the other, in which the same treatment proved equally efficacious.

X—URTICARIA, ESSERA, NETTLERASH.

THIS is one of the most frequent, as well as innocuous of cutaneous affections. The severer forms may be accompanied by fever, the milder are not. It is characterized by numerous wheals or patches, sometimes of a pink hue, but, for the most part, white, scattered over the body. They are very irregular in form, sometimes long and prominent, and running together, not very unlike the pustules of confluent small-pox. The eruption is fugitive; appearing and disappearing, almost under the eye of the observer—sometimes affecting one part, sometimes another, and, occasionally, extending over the whole surface. It is attended, more especially at night, with a painful itching or urtication, and is no ways communicable. It may be preceded, for a day or two, with headache, precordial oppression, sickness, and loss of appetite; in the acute form, the disease rarely lasts more than a week or ten days, but, in the chronic, its duration is indeterminate.

No disease, perhaps, more clearly illustrates the connexion between the skin and stomach; accordingly, substances capable of deranging the action of the one, will readily induce the morbid modification under consideration, in the other. Thus, the ingestion of muscles, crabs, lobsters, oysters, the yellow-billed sprat, pork, cheese, cucumbers, mushrooms, copaiva, turpentine, bitter almonds—also, the contact of acrid plants, as the rhus toxicodendron, nettle, and of some molluscous animals, induce nettlerash in many individuals. Common articles of food and medicine are productive of the complaint in some, and wholly inoperative in others; while the same person is not equally liable at different times. There is no end to the list of substances that might be enumerated as having induced this troublesome affection. Heberden mentions valerian; and J. Frank speaks of one who experienced it every time he drank Seltzer water. This last writer adverts to the eruption as implicating the tongue. Gibert witnessed its instant production after disagreeable mental impressions. None of the substances mentioned, apparently possess so much influence as the muscle; Hoffmann, Meibomius, and Behrens, all experienced the disease after the employment of this food; the last-mentioned to that extent, as to induce nausea, vomiting, fainting, enormously swollen face, closed eyes, tumid upper lip, and intolerable itching over the whole body. The young are more liable to acute nettlerash, whereas, elderly persons to the chronic disease. It sometimes precedes the menstrual period. Astruc asserts that it is endemic in parts of Languedoc. It is curious that persons labouring under it, and sometimes even those who are free from the complaint, induce it by rubbing and scratching the surface. I have, however, repeatedly met the disorder without being able to

assign any feasible cause for its production. Biett has witnessed its conjunction with erythema, roseola, impetigo, and lichen ; Wickman, with variola ; Hufeland, with measles and jaundice. Rayet saw it often in rheumatism ; he also speaks of a patient who laboured under prurigo and urticaria, and whose skin was torn and bloody from the furious scratching.

The mildest and most frequent form of urticaria is that to which the epithet, *evanida*, is attached. In very irritable constitutions, when the eruption is copious, and attended with gastric complication, fever is apt to be present ; hence, *urticaria febrilis*. I was sent for to a gentleman, whose face was swollen and whole body covered with nettlerash of a vivid pink hue, the skin in the intervals of the wheals being redder than usual. The fever was considerable, but the rash, at the end of a few days, had almost disappeared. The epithet *perstans*, has been needlessly applied to chronic nettlerash. *Urticaria subeuntanea*, without eruption, itching being present, is rare, if not imaginary. Biett met with it but twice. *Urticaria tuberosa* is attended with constitutional derangement, and considerable pain and tension, coming and going, perhaps, for months. The fluctuating character of the patches, irrespective of other signs, sufficiently distinguish it from *ecthyma*, and *erythema nodosum*. Burserius mentions the occasional conjunction of urticaria with periodic fever. Cazenave describes a case in the fourth volume of the *Nouvelle Bibliotheque Medicale*, in which, for four years, urticaria ensued in daily accessions along with quotidian. The patient's body was disfigured by ecchymoses, lacerations, and ulcerations ; while the dyspnoea, at times, was so considerable, that life was only preserved by copious blood-letting. This subject was cured, at last, by Fowler's solution. Another instance is recorded in Sédillot's journal, with well-marked tertian, and which was removed by the bark. Houghton relates the case of a boy who was nightly attacked in his bed ; the symptoms were unusually severe and violent. Bugbites bear a resemblance to nettlerash, not only in their aspect, but in the painful stinging which accompanies them ; they are, however, round, not oblong, and obviously do not flit from place to place. I have been applied to by persons under the impression that they were bitten by these insects, whereas, they were covered with wheals of nettlerash. Urticaria requires little treatment beyond attention to the bowels, and the rejection, if it can be discovered, of the offending article. If the ingestion of any poisonous substance lead to it, an emetic of the sulphate of zinc, or a smart aperient, should it have passed the precincts of the stomach, will be expedient. Cordials and restoratives may afterwards prove requisite. Should *essera*, as the Arabians termed the disease, be conjoined with periodic fever, we must resort to the sulphate of quinine. Chronic urticaria may demand recourse to alkaline, and vapour baths, with aperients and regulated diet. Michaelis in Hufeland and Himly's journal, speaks of the suppression of urticaria as being sometimes attended with inconvenience. I never saw anything of the kind ; but should it be apprehended, a bath might be expedient.

CLASS II.

DISEASES OF THE RESPIRATORY ORGANS.

I—LARYNGITIS, TRACHEITIS, CROUP.

UNDER these names, inflammation, affecting the same, or nearly the same surfaces, but displaying different characters, is described. Laryngitis, so termed, is confined to adults, whereas croup is peculiar to infancy and childhood. In the latter disease, however, there are false membranes; in the former, none. Croup was not clearly adverted to by the ancients; the description seems mixed up with that of other maladies: nor until the times of Baillou and Severino, has distinct mention been made of laryngitic inflammation with false membranes, ulceration being absent. Long subsequently, Ghisi separated croup from angina gangrenosa; a distinction still further insisted on by Home, though, strange to say, overlooked by Begin, Cruveilhier, and other pathologists. The period of incubation in tracheitis or croup is usually brief, and rapidly followed by great fever, hot surface, quick pulse, dyspnœa, and, more especially, a ringing, stridulous, metallic cough. If the disease be not checked, the dyspnœa, fever, and anxiety increase; the cough becomes aggravated, with vomiting, which facilitates the discharge of a pseudo-membranous, albuminous concretion, sometimes not very unlike boiled maccheroni, and easily separated from accompanying matters by careful washing. The patient now grows gradually worse, paroxysms of dyspnœa become more frequent and severe, the face and extremities, from the imperfect change in the blood, turn pale and livid, and the sufferer goes off in a fit, or expires comatose. In a few instances, dyspnœa intermits before death, and the patient sinks gradually exhausted, but with comparative serenity.

The disease, as Cheyne observes in his excellent monograph, is apt to ensue in the evening, often after previous catarrh, with dulness, languor, and a hoarse puling voice. The child sleeps, but is frequently awakened by an acute, ringing, suffocative cough, with difficult breathing and crowing inspiration, while the face is swelled, and the eye watery and blood-shot. Change of posture gives no relief, but there is, perhaps, slight remission in the morning. The complexion becomes successively purple, pale, and livid; while, weakened by its violence, the little sufferer perishes on the third, fourth, or fifth day of the disease. The most important distinction in croup is between the purely inflammatory stage, and that in which false membranes appear. In some children, those especially who have had the complaint before,

a croupy cough ensues on taking cold, which, if not checked, ends in the more disastrous features of the disease. No effusion ensues in the early stages, but after this dreaded change, the excitement gradually wears off, to give place to fatal exhaustion. The course of croup is sometimes very rapid; a few hours, it is alleged, have been known to close its career. The expulsion of false membranes is productive of temporary relief, and may lead the inexperienced to the premature expectation of a permanent remission. Sometimes the patient becomes wholly insensible; but in others, the child remains conscious to the last, and, to use the language of Dewees, with eyes that beseech a relief which neither science nor affection can bestow. Recovery in the early stages is attended with the gradual decline of the cough and feverish symptoms; in the more advanced, with diminished expulsion of false membranes, or a cessation of muco-purulent expectoration. Some subjects regain health rapidly; others, again, will be days before all cough and pectoral derangement disappear. The sibilant bronchial rattle is obvious without the aid of the stethoscope; auscultation and percussion, however, will point out pneumonic complication when the complaint has subsisted long enough for its supervention. Acute cases, however, as Porter remarks, are to be looked on as examples of inflammation in a particular structure, the larynx—tending to a given result, the production of false membranes. The narrowness of the glottis in childhood, the inflammatory turgor in that and the adjoining parts, account for the orthopnoea and suffocation in the first stage; while false membranes, and imperfect arterIALIZATION of the blood, explain the livor, coma, and congestion incident to the last. Inflammation commonly extends to the trachea, sometimes to the first divisions of the bronchi, with engorgement of the minuter tubes. I once met with a fatal case of croup, in which the larynx and trachea, though red and inflamed, displayed no trace of false membranes; and a similar occurrence has been adverted to by Autenrieth and Chambon. The form and position of the false membranes are well delineated in Cheyne's plates.

The usual causes to which croup is assigned, are cold and moisture. It is said to be common on the sea-coast, an averment which my own observation does not confirm. The east wind has been alleged to be peculiarly productive of it. Some children appear more liable to croup than others, those especially who have had the disease before. It is among the sequelæ of the febrile exanthemata. In predisposed persons, a very slight degree of exposure, such as running out bareheaded, wet feet, or deficient clothing, will produce the disorder. The disease, however, allowing, as Porter observes, for the difference of numbers, is more prevalent among the rich than the poor, doubtless, because the latter are better habituated to atmospheric vicissitudes. Croup is seldom witnessed in children at the breast, but I have met with it in such: it is more or less common from the period of lactation up to six or eight years, after which it becomes greatly less frequent. A child, says Trousseau, had a slight croupy cough, but was next day gay as usual, and had gone to walk in the Luxembourg garden. Croup came on during the night, and, notwithstanding tracheotomy, and other active measures, he was moribund by ten in the morning. Why laryngeal inflammation, with false membranes, should be so frequent in the child, is an anomaly that we are unable to explain. Rosenstein, Mar-

cus, and Gölis, talk of the contagiousness of croup; but, notwithstanding their averments, and those of Gregory, I am certain that, in the cases alleged, angina maligna must have been mistaken for this disease.

Stridulous breathing, pseudo or spasmodic croup, termed laryngismus stridulus, has often been confounded with regular croup. Children, also, are liable to bad breathing, with croupy cough, and more or less fever, whether alone, or as attendant on measles and the other exanthemata, which may go off without worse consequences. Spurious croup, according to Guersent, may be combined with pneumonia; while Brétonneau and others allege its association with angina maligna itself. Inflammation, however, is never present; when it is, the term is no longer applicable. Some are of opinion that spurious croup is more frequent than the real disease, a conclusion in which I do not coincide. It is seldom witnessed except at, or a little after, the period of lactation; whereas, genuine croup is seldom seen till after the weaning period, and extends its ravages within a few years of puberty. Laryngismus stridulus is of brief duration, rarely fatal, leaving the child well as before; whereas, croup is always dangerous, often fatal, and commonly lasts a few days. Cynanche maligna, or angina gangrenosa, whatever Brétonneau and his adherents may allege to the contrary, is equally distinct. Angina is connected with scarlatina—it is contagious, which croup is not; it is attended with fetid breath, a circumstance never witnessed in croup; and it may affect any period of life, which croup does not. In scarlatina, inflammation begins in the fauces, which it never does in croup; while the effused substance undergoes decomposition, and, perhaps, covers ulceration or sloughing, events never witnessed in the disease with which it has been so unfortunately confounded. General stimuli, with local astringents and cauterization, constitute the treatment in gangrenous sore throat; these means, however, in croup, would be destructive or inapplicable. I am aware of no tables relative to the fatality of croup in these countries; almost every thing, will depend on the treatment. On the continent, however, where two different diseases are confounded, diagnostic indications derived from the mortality, would be nugatory. Thus, at Wertheim, thirty-six died out of forty; and at Ferté-Gaucher, sixty were attacked, and sixty died. Guersent, indeed, affirms, that in real croup, eight hardly recover out of ten. If French pathologists had paid more attention to that symptomatology which some among them so habitually decry, and a little less to mere structural changes, it is probable they would not so readily have lapsed into the error above adverted to.

The laryngitis of adults is distinguished from that of childhood, by the absence of false membranes. Acute adult laryngitis, indeed, is a rare disease; in the chronic form, however, it is comparatively frequent, though, from its connexion with scrofulous or syphilitic degeneration, of a peculiar character. This complaint, before the fatal cases of Washington, Pitcairn, and Hayes, may be said to have been neither known nor adverted to; but, since the publication of these, numerous instances have been recorded. The disease, at first, on the continent at least, was not recognized by its usual inflammatory tokens, so much as by the accompanying œdema of the glottis; now, however, both French and English pathologists look upon this phenomenon as a result of the primary disorder. The œdema arises from infiltration of the

parts, sometimes with pus, commonly with serum. The tension of the epiglottis is such as very imperfectly to prevent the admission of foreign substances; hence painful spasmodic fits of coughing after attempting to swallow solids or fluids. Acute laryngitis is the most rapid, severe, and dangerous of all inflammations, and, if not relieved, may prove fatal in twenty-four hours, or it may last a few days. The general uneasiness, fever, and local pain, are very great; the subject, if interrogated, points to the larynx as the seat of his disorder. The dyspnœa is dreadful; the patient desiring nothing so much as fully to inflate his chest. As the disease advances, the orthopnœa, more especially during paroxysms, becomes extreme; so that the individual is rarely able to lie down, but walks about, grasping some solid body, as Porter observes, or approaching the open window. In one fatal case, that of a poor boy, the head was thrown back, till the occiput almost touched the spine. Indeed, the constriction at the glottis is such, as to cause the complaint to bear no remote resemblance to hydrophobia. The voice, so long as articulation remains, is hoarse and whistling, eventually sinking into a mere whisper. There are frequent attempts at deglutition, and for the expulsion of some fancied foreign body in the throat. The harsh and sibilant respiration betrays the passage of air through a narrow orifice; while the turgid features and prominent eyes, mark impeded respiration and imperfect circulation. The patient at length is reduced to extremity, and dies in a paroxysm of dyspnœa. This disease, the operation of mechanical or corrosive agents apart, has been referred to cold and moisture. It is difficult, however, to account for its infrequency. As described by Bayle, it received the title of œdema of the glottis, a term for which the French now substitute sub-mucous laryngitis. In other respects, Cruveilhier's division into inflammation above, and inflammation below the glottis, is expedient. In the first, the mucous folds connecting the epiglottis and arytenoid cartilages, are infiltrated with pus or serum; in the second, similar changes ensue beneath the ventricles and behind the cricoid cartilages. Supra-laryngitis is most frequent; but infra-laryngitis also takes place. A young man labouring under pneumonia, entered the *Maison royale de Santé*, under Dumeril. Hardly convalescent, he began to complain of acute pain in the larynx and dyspnœa, followed by croupy voice and cough, aphonia, and frequent fits of suffocation, in one of which he expired. A prominence on the posterior surface of the larynx being cut into after death, the cricoid cartilage was found bare, corroded, and perforated, floating in a sheath filled with pus. Another case was seen by Cruveilhier in a preparation; the patient had been suffocated; the cricoid cartilage was eroded; and pus had made its way through a perforation in the œsophagus. In a third, by Bouillaud, there was an abscess in the posterior larynx, and the cartilage laid bare as if dissected. The fourth occurred in the *Hôtel Dieu*, under Bally. The man was seized with sibilant cough and fits of suffocation, in one of which he threw himself out of bed, with elevated head and stretched-out neck. Neither bleeding, emetics, nor blisters, with scarification at the base of the tongue, followed by laryngotomy, proved of any avail. Laryngitis below the glottis, though rendered evident by the symptoms, cannot be explored externally. When inflammation ensues above the glottis, however, if the mouth

and fauces be exposed to a good light, the tense and swollen epiglottis, sometimes pale, at others like a cherry, or piece of raw meat, becomes visible. It may also be felt, more especially if œdema subsist, by the index and middle finger previously warmed. Their introduction, not very practicable at any time, is much easier in the chronic, than the acute disease. The ingestion of corrosive liquids has been esteemed a cause of laryngitis; and an analogous affection certainly ensues in those disastrous instances in which infants gain access to, and drink boiling water from, teapot or kettle spouts. Acute laryngitis may supervene upon other affections, but, in the generality of instances, is uncomplicated. This disease has been obscurely referred to by the ancients. Tulpins describes a case in terms tolerably precise. The voice of one seated at a feast, says Boerhaave, was observed to become acute and hissing. The rapid death of the sufferer undeceived the spectators, who, at first, regarded the occurrence as a joke. Here, however, foreign matters had possibly gained admission into the larynx.

Chronic laryngitis is rarely independent of scrofulous or syphilitic taint; it may, however, ensue after neglected bronchial or catarrhal affections, in hard drinkers and others. The disease may be sub-acute or chronic from the first, or it may supervene on the acute form. Occasionally after exposure to cold and moisture, or undue vocal exertion, there are stridulous breathing, and more or less aphonia, so that the person is obliged to speak in a whisper. From whatever cause, however, whether with or without syphilitic or tuberculous degeneration, there are hoarseness, sibilant respiration, puerile voice verging on aphonia, a hard dry cough, or one attended with some degree of expectoration. The sonoreity of the voice is often quite lost, the cough distressing, and the dyspnœa urgent, particularly at night. The uvula is commonly so relaxed in phthisis laryngea, for so the complaint is often termed, as to induce me to look upon it as part and parcel of the disease. I witnessed three cases, indeed, in which relaxed uvula preceded chronic laryngitis and tuberculous lungs; while Stokes affirms, that night cough, with puriform bloody expectoration, stridor, hoarseness, and phthisis laryngea, are occasionally produced by relaxed and elongated uvula; results, however, incompatible with the alleged cause. The symptoms attendant on syphilitic laryngitis are analogous to, or identical with, those of the tuberculous form, which, I conceive, is the more frequent of the two. Collateral circumstances, and the history of the case, are calculated to throw light on the diagnosis: in tuberculous laryngitis, it may be observed, pulmonary tubercles are almost always met with. Symptoms indicative of these, however, may not appear for a year or two after the primary disease; and Cruveilhier has several times found phthisis laryngea far advanced, when the tubercles in the lungs were still crude. It has happened that chronic laryngitis, owing to the cough, has been mistaken and treated for pulmonary disease. Almost every case of neglected, ill-managed laryngitis may terminate in local ulceration and denuded cartilages; and the writer last named, affirms, that he has seen the most vigorous subjects perish thus. Trousseau and Belloc have known œdema of the glottis to ensue in four or five instances in the chronic disease. The epiglottis is ulcerated and covered with carunculi; but the dysphagia, these writers inform us, is not always proportionably indicative of the

lesion. In fact, Magendie and Cruveilhier have found the epiglottis partly or wholly destroyed without any difficulty in swallowing. Crepitus has been discerned when the larynx was moved about; but this must not be confounded with the crackling which sometimes ensues in health. Necrosed portions of the cricoid and arytenoid cartilages are occasionally coughed up; the thyroid, also, has not always escaped. In one or two instances, aneurism of the arteria innominata, pressing on the trachea, has simulated chronic laryngitis, and, under the supposition of its being that disease, has nearly led to the performance of bronchotomy. The diagnosis between laryngitis and those forms of bad breathing induced by the reception of foreign bodies into the trachea, will be found in Portor, Ryland, Stokes, and others. The foreign body, when it descends below the trachea, commonly occupies the right bronchus. Tracheal phthisis is readily distinguished from laryngeal, by the absence of dysphagia and stridor. Chronic laryngitis is most common in the male sex: I have met few cases among females; Ryland's experience, however, has been different.

The efficacy of remedies, and the probability of recovery in croup, are in the direct ratio of the recency of the disease. The course of genuine croup, says Ferrier, is very short; if not mitigated within six hours, it is commonly fatal. He never succeeded in curing the disease save once, when called in to patients the day after the attack. I shall always remember with pain, observes Cruveilhier, the instance of a child five years old, with all the symptoms of croup. The parents smiled at his alarm, and said, it was the fourth attack within two years, and that the rest had gone off of themselves. After vain entreaties he went away, leaving his opinion on record. Early in the morning, he was sent for in haste, but the child's face was the colour of wax, and she was in the last agony. It is, indeed, one thing, as Porter observes, to check inflammation and prevent its effects—another, to remove those effects when they have ensued. When croup has once taken place, or when croupy cough, hoarseness, and difficulty of breathing yield alarm, let the child receive an immediate emetic. I am in the habit of employing, for this purpose, two grains of tartrate of antimony, and four of ipecacuanha, to the ounce of water, which may be exhibited in teaspoonsfull, till copious retching be induced. This procedure will often serve to strangle the complaint in the onset. An infant of my own, at the breast, was seized with stridulous breathing and croupy cough early in the night. I instantly gave it thirty drops of antimonial wine, then forty, seventy in all, till the little creature threw up freely, with immediate relief. Croup is apt to come on at night, and I have observed a tendency to recrudescence on the evening following the attack. In the above case, the croupy cough shewed itself afresh, but to a slighter extent: I was on the watch, and thirty or forty drops of antimonial wine, given as before, sufficed to remove it. The sister of the foregoing, nearly four years old, was recently affected; but, in this instance, I think two ounces of the antimonial solution were employed in all, with four leeches to the upper part of the sternum, and purges of calomel and antimony. Here, it is worthy of remark, the complaint renewed itself on the second night also, and was not fully subdued till three days had elapsed. By means of rapid doses of the syrup of squills, and the irritation produced by hartshorn, or mustard

and vinegar applied to the throat, Dewees avers, that he has often dissipated the disease within an hour or two. This writer feelingly adverts to the sensitive ear which is obtained by one who loses his only child, as he had done, by croup. Going past a house on a cold, drizzling evening, he procured admission for a little shivering boy, with a hoarse cough, on whom the door was closed. He warned the mother, who laughed at his fears; but, by the morn, the boy was dead. The tartrate of antimony, on which Cheyne and others so much depend, is, perhaps, the best; any active emetic, however, may be used with success. Judicious parents, with children liable to croup, will always keep an emetic mixture in the house, in the country particularly. Doubtless, life might oftener be preserved by being prepared for the emergency.

Young subjects will not bear much depletion, but in plethoric children, a vein may be opened in the arm or neck, and a few ounces, more or less, taken away, till the pulse falter and the face grow pale. I prefer general, to local bleeding, as more instant in its effects; but in weak debilitated subjects, or when venesection has been premised, we may apply leeches to the sternum—two for the first year, and one more for every year succeeding. A bit of lint may be applied when the leeches fall off, and the hemorrhage arrested, if necessary, after an hour or two, by a point of lunar caustic. I am particular on this head, as I have seen harm done by the indefinite oozing of leech-bites. The emetic assists depletion, and conversely. Some discussion has ensued, as to which was first eligible: in my opinion, we should lose not a moment, but employ whatever is most convenient, the lancet or an emetic, or both together, if we have them. In fact, I always employ these means simultaneously, when at my disposal. If I had nothing else, I would resort to mustard or warm water, with a feather, till better remedies could be procured; so important is it in this serious malady to seize time by the forelock. When the first brush of alarm is over, and the active measures above specified have been put into operation, it will be well to direct a warm bath. This assists the emetic in determining to the surface, and helps to resolve the disease. The antimonial should be continued in moderate doses, in order to keep down reaction, and prevent the tendency to recrudescence. Continual vomiting would only exhaust the patient, without exercising the curative influence we could desire. Now, if ever, is the time to commence with calomel, so warmly advocated by Rush, Hamilton, Elliotson, and others. Whatever be the efficacy of this alleged remedy, I would not conceive myself warranted in having recourse to it, without premising the more active measures already specified. In this case, one, two, or three grains, with a sixth of the tartrate of antimony, may be given every hour or two. Many persons conceive that this medicine, aided by the warm bath, has a specific power in removing the disease; but in this conclusion my experience does not concur. In every case, however, it is proper, as Cheyne remarks, to open the bowels moderately, by a sufficient dose of calomel and James' powder, followed, if necessary, by a little castor oil. Diluent drinks may be allowed without restriction. We have more powerful and less painful remedies, in the early stages, than blisters or other revulsives; in the more advanced, they are useless. Cheyne considers tartar-emetic—a table

spoonful of a mixture containing a grain to the ounce, so as to produce vomiting every two hours, our sheet-anchor in the second stage of croup. Patients, indeed, seldom recovered in this stage, but when they did, it was while using the antimonial, with which some children were kept sick two or three days, with little interval, while, to others, it was given five or six nights in succession. The foregoing practitioner cautions us against over activity; and when gasping, miserable pulse, and clay-cold surface ensue, urges the exhibition of cordials. In such cases, I have given a little largely diluted brandy, negus, chicken-broth, and sometimes a few drops of the tincture of morphia or opium. When livid countenance, sinking pulse, and cold extremities announce the final close, tracheotomy has been proposed and practised; but, with false membranes lining the air passages, infiltrated lungs, and dark black blood, the prospect of success is indifferent indeed. Cheyne, Physick, Dewees, Copland, Gölis, Porter, Stokes, and Gregory, very justly reprobate the practice. In fact, French pathologists and others, from the confusion which they have created between two distinct diseases, have lent undue sanction to the practice; and Amédée Latour records eighteen recoveries out of sixty operations. It is not likely—a few instances, perhaps, excepted, that the subjects of these operations laboured under croup. In fact, opening the trachea, drawing out false membranes with pincers, and cauterizing the passages, are spoken of—processes questionable in angina, but in croup, absurd. I have only to add, that in the complaint under consideration, the utmost care should be taken to guard against premature exposure and relapse.

In a disease like the acute laryngitis of adults, the most active remedies suggest themselves. Whether from its violence, however, tardy treatment, or constitutional peculiarities, recoveries prove rare. The remedies on which we have to rely are blood-letting, tartar-emetic, calomel, opium, and tracheotomy. Blood-letting has been employed to a prodigious extent, without success. Pitcairn was treated by Baillie, in 1809, and bled at his own desire. The nature of the disease was unknown, and as little danger was apprehended, though the unfortunate sufferer wrote down croup, remedies were not pushed far enough to afford a chance of recovery. A similar remark extends to the next case, which was also that of a medical man, Hayes, who, it seems, had the disease before. Washington died of acute laryngitis, after losing eighty or ninety ounces of blood. Dr. Francis recovered in the hands of Dr. Beck, losing one hundred and fifty-two ounces in seven days; and Armstrong mentions, that, in one of his fatal cases, one hundred and sixty ounces had been abstracted within six hours. Similarly large detractions, sometimes successful, often otherwise, are recorded in Irish and English periodicals. Copious depletion is to be practised, and repeated every six, twelve, or eighteen hours, while the throat should be covered with leeches, and the tartrate of antimony given in emetic doses. Armstrong mentions five instances, in which antimonials were successful; but in three of these, he gave calomel and opium till the mouth grew sore. I certainly would exhibit these last remedies after the full and previous employment of vomiting and venesection. The stronger mercurial ointment, also, should be freely rubbed in. When these measures, however, prove inefficient, when they have not been

early enough resorted to, or when the pulse becomes small, the countenance livid, and the extremities grow cold, we are to have recourse to laryngotomy, an operation legitimate and practicable in the laryngitis of adults, as it is inefficient and useless in that of children. Porter ascribes the many unsuccessful instances of tracheotomy which he met with, not so much to the severity of the disorder or the inadequacy of the operation, as to the time lost in combating inflammation before the knife was resorted to. It is most injudicious to delay the operation till the blood becomes dark, and the patient is threatened, if not actually seized with suffocation. It was recently performed in Tuthill's case, not unsuccessfully. An incision may be made between the thyroid and cricoid cartilages, and any convenient tube, properly secured, introduced a short way into the trachea. In a case operated on by Mr. Macnamara, there were the usual symptoms of stridulous cough, aphonia, and dysphagia, the epiglottis being erect, pulpy, and swoln to the size of a walnut. The patient fell asleep after the operation, and was able to leave the hospital in a few days, the wound being nearly healed. Porter joins Carmichael as to the occasional propriety of bronchotomy in chronic laryngitis, attended with local, structural change, and paroxysms of dyspnoea. It always procures immediate, and should tubercles be absent, permanent, relief. Three or four persons, one of whom I have seen, go about Dublin breathing through a tube. In the case of a little girl of two, who had attempted to swallow boiling water, the operation was successfully performed by Mr. Adams. It does not come within my province to dilate on the operation when foreign bodies have gained admission into the larynx. It is singular how rapidly death ensues in some of these cases, and how slowly in others. The irritation of the foreign body sometimes induces tuberculization in the lungs, which, of course, has the effect of accelerating the fatal result. The treatment of chronic laryngitis, more especially when complicated with disease of the lungs, comes more fitly under the head of phthisis. Counter-irritation has been copiously employed, and Trousseau and Belloe recommend leeches along the margin of the trachea, remedies which I have found of little avail. The first of these writers has proposed the introduction of a sponge saturated with a solution of the nitrate of silver. Silence and suppression of the cough will help to allay the sufferings of the patient. When chronic laryngitis has any connexion with syphilis, mercury must be cautiously resorted to; some very satisfactory examples of its efficacy have been recorded.

II—BRONCHITIS, CATARRH.

Few complaints exhibit a greater diversity than this; being, at times, so slight that we are almost entitled, with Broussais, to refuse it the title of a disease; while at others, it is not only severe, but rapidly fatal. Bronchitis is one of the most frequent of all maladies, so that, as Laennec remarks, there are few who do not labour under it, once or oftener in the year. It varies according to the extent of mucous lining implicated, the intensity of the exciting cause, the constitution of the patient, and the treatment. It may subsist in the acute or

chronic form; it may disappear without inducing any local changes, or these may be numerous and important. The bronchial tubes alone may be affected, or there may be concomitant or supervening disease of the lungs, pleura, or heart. As for the term bronchitis, it refers to the seat of the disorder, as catarrh does to the discharge. The tubes may be primarily affected, or inflammation extend from the nasal passages, but the coryza, or cold in the head, may invade simultaneously with the hoarseness indicative of tracheal or bronchial complication. The symptoms attendant on mild bronchitis or ordinary catarrh are so well known as hardly to need description. If the head be affected, there is dryness of the nostrils and frontal sinuses, with a disagreeable feeling of weight and fulness, gravedo, lachrymation, and lessened sense of smell and taste. If the chest be implicated, there are more or less dryness, hoarseness, and cough, followed, after a variable interval, by some degree of expectoration, after which the complaint commonly disappears. Cold in the head is very annoying to children, obstructing their little nostrils, and causing them to snuffle; slight alternations of temperature will induce this in many young persons. The inconvenience to infants at the breast is more serious, as interfering with the act of nutrition. The disease in its severer forms, acute bronchitis, namely, breaks out after undue or long-continued exposure, with shivering, followed by reaction, hot skin, quick pulse, anorexia, great fulness, and thoracic constriction. The hoarseness is often considerable, and the patient makes frequent ineffectual efforts to free his lungs from the load which oppresses them. The cough varies from a slight tickling to one that may well be termed lacerating; at the same time, pain and heat run down the trachea, and follow the bifurcations of the bronchi. Respiration is accelerated, and the dyspnœa in some, amounts to orthopnœa; the voice, also, is broken, by wheezing and coughing. During paroxysms of dyspnœa and coughing, the pain is aggravated, while the interrupted circulation causes the head to ache, and the face to flush and swell. The expectoration, at first, is slight; afterwards, there is a copious sero-mucous discharge, not very unlike the whites of eggs. Sometimes at this period, or not till subsequently, the sputa are tinged with blood, but they never wear the rusty hue, or present the tenacious consistence observable in pneumonia, unless, indeed, that disease supervene. Should the complaint cease here, the expectoration gradually diminishes, but, otherwise, comes to wear the appearance of a multitude of amorphous purulent masses, floating in a viscid fluid. In the event of a favourable termination, the purulent sputa disappear, and are replaced by others purely mucous and frothy, till these, at last, resume their normal aspect. I have, however, seen purulent, alternate with mucous sputa, for a week, before the latter finally ceased. In a few instances, the expectoration is green. The disease may terminate in a week, but, more commonly, it runs a fortnight, three weeks, and a month. I have known it to last six weeks. In favorable cases, the cough, expectoration, dyspnœa, and pain under the sternum, successively decline; the epigastric fulness, headache, quick pulse, hot surface, and muddy urine, likewise depart, and the patient, by slow degrees, regains his strength, appetite, and nightly rest.

Catarrh or bronchitis may lapse into a milder form, and continue

months and years, in which case, the epithet chronic is prefixed. There is every possible variety, from a slight persistent cough which gives little annoyance, to one that is frequent and harassing, and in which the expectoration is so copious, and the local irritation so considerable, as eventually to wear out the patient. The constitution, however, often adapts itself to the disease, and I have known those who coughed and expectorated for periods of twenty, thirty, and even forty years. There may be, and commonly is, a total subsidence of inflammatory action, although the bronchial lining continue to eliminate enormous quantities of pus, mucus, and serum. Very often, the affection is sub-acute or chronic from the first, and is induced by cold and moisture, or by the continued irritation of mechanical agents passing into the lungs, as the vegetable and mineral dusts engendered in various manufactures. Laennec follows different authors in dividing this disease into the mucous, pituitous, dry, symptomatic, latent, and suffocative; the term *peripneumonia notha*, the bastard peripneumony or humoral asthma of old writers, was long in use. The expectoration is much the same as in the acute form; sometimes purely mucous, at others, purulent, muco-purulent, inodorous, and sometimes foul-smelling. It is commonly most copious in the morning; but when the disease is inveterate, it remains so throughout the day. The act is often painful, the face becoming turgid with blood, while there is, perhaps, more or less disorder in the circulation; at other times, there is not a trace of fever, and expectoration takes place with the utmost facility, to the extent of pints or quarts daily. The health, however, is generally shaken, and, from the embarrassed state of the lungs and right side of the heart, very considerable livor. I have seen the countenance, from this cause, assume the aspect of a person in cholera, or one who had taken the nitrate of silver to excess. Should acute, supervene on chronic bronchitis, constituting the *catarrhus suffocativus* of many authors, the danger is imminent; indeed, acute bronchitis, particularly in very young or very aged persons, is a disease of great danger. Sometimes, from the supervention of other diseases, the expectoration disappears, in which case, the prognosis is bad. A not very unfrequent result of bronchitis passing into the chronic form, particularly after undue exposure, is the gradual induction of hepatization of the lungs, and death. Several instances of this are given in the first volume of Broussais, *Phlegmasies Chroniques*. In one of these, the patient, a soldier, who had not ceased to cough on leaving the hospital, presented himself for re-admission on the forty-third day, and died on the fifty-first. After death, three-fourths of both lobes posteriorly, were of the colour and consistence of liver, but there was neither abscess nor tubercle. In another, the catarrh had lasted three months. After a protracted agony, the whole of the right lung was found indurated. In the next, wherein death took place in a month, the posterior portions of both lungs had undergone this change. Whilst chronic bronchitis is, in many cases, a mild disease, it may put on all the features of mortal phthisis, if it do not actually merge into that complaint.

Under the questionable title of dry catarrh, Laennec describes that ordinary form of chronic bronchitis, in which, with dyspnoea and cough, there is little or no expectoration. United with emphysema of the

lungs and nervous dyspnoea, as Forbes and Mériadec Laennec observe, it constitutes a disease long confounded with asthma. Sometimes bronchitis lapses into a chronic condition, in which there will be little or no expectoration for months. In a case of this kind, which came under my particular notice, it was not till the patient had half crossed the Atlantic, and reached warmer latitudes, that copious viscid sputa ensued daily after breakfast, by means of which, the sternalgia and tightness across the chest were, in a short time, completely removed. Ptituitous catarrh, according to Laennec, is attended with colourless, transparent, and ropy expectoration. In the acute stage, we must concur with Mériadec Laennec, that it is merely the ordinary form, in which the bronchial inflammation has terminated before the secretion has had time to take on the muco-purulent aspect. Monneret, Reynaud, and Stokes speak of a capillary bronchitis: it has always, however, been admitted, by pathologists, that the tubes, both large and small, were more or less implicated in bronchial disease. Reynaud along with Stokes, further contends for a plastic, capillary bronchitis; but the assumption on which this is founded, of the conversion of the mucous lining of the minute bronchial tubes into a serous one, seems destitute of foundation, and opposed to analogy. The bronchitis of infants is much the same as that of adults, except that it is, perhaps, more frequently latent; to this, the well-known tendency of infants to swallow their expectoration, contributes. It is common, as well as destructive, in the idiopathic form, and as a complication of measles, whooping-cough, scarlatina, and dentition. Bronchitis is, in a manner, endemic in foundling hospitals and other asylums for children; also in low, narrow, filthy lanes and dwellings. It is often mistaken for croup; parents, indeed, will say, that a child has had the latter disease several times in the course of a winter. The disease may end in resolution or death, without advancing beyond the first stage. Latham does not appear to draw any minute distinction between inflammation of the smaller tubes, and that invading the vesicular or pulmonary tissue itself. Sometimes the little sufferers labour under concomitant affections of the head and bowels. As for congenital solidification of the lungs, induced, according to Jörg of Leipsig, by over-slow or over-rapid delivery, we cannot look upon it as of an inflammatory character. Billard merely adverts to the fact of infants a few days old, labouring under bronchitis; and advances the strange position, that they sometimes retain their expectoration for months, if not the whole period of dentition. Scrofulous, syphilitic, and other cachexies, are occasionally associated with bronchial irritation, which then demand the usual methods of exploration.

Bronchial mucus sometimes becomes inspissated to that degree, as to remain impacted in the tubes, inducing asphyxia and death. As many instances have been recorded by authors, others, it is to be presumed, escape detection. I often witnessed the discharge of solid masses or plugs of mucus, but never moulds of the tubes. Two examples of tubular expectoration are related by Stokes, and one approaching it, by Laennec. Intense and sudden orthopnoea, with livid countenance and extremities, suddenly ensued in one of Andral's patients, who had laboured under cough and articular rheumatism. There was puerile respiration all over the left side; on the right,

though the mucous rattle could be detected over a few points, and the chest remained sonorous, neither respiration nor rattle could be heard beneath the clavicle till a little below the nipple. The sufferer vainly intreating to be freed from the enormous weight which was suffocating him, died shortly after asphyxied. On examination, a mass of half-solid mucus closed the passage. The diagnosis had been that of pulmonary emphysema. Another case was that of the driver of a fiacre, who had several times been under treatment for inveterate bronchitis. One morning, after a violent fit of coughing, the breathing became suddenly much embarrassed, and the respiratory murmur had nearly forsaken the superior lobe of the right lung. The man died, and a solid cylinder, ramifying into three or four of the smaller tubes, was found impacted in the principal bronchus of the upper lobe. Tulpinus, in the thirteenth chapter of his observations, speaks of *integra vena a pulmone rejecta*, in the person of a certain navarchus or sea-captain, long molested with troublesome cough. The ramiform expectoration is delineated in two plates, and excited the wonder of his cotemporaries, as a thing, *nec visuri nec lecturi in ullis medicorum monumentis*.

Among the results of bronchitis, are partial narrowings and expansions of the tubes, also enlargement of the air-cells. Obliteration of the tubes may arise from pressure of external tumours, melanotic, and others; but is mostly owing to inflammatory turgescence of the lining membrane. It may exist, according to the observation of Stokes, as an acute or chronic affection; but, in the last case, is apt to be associated with tubercles. In an example furnished by Andral, the principal bronchus of the right lung was so narrowed, owing to thickening of the mucous membrane, that a fine probe could hardly pass. In another, the branches of the right bronchial tube were diminished to one fourth their ordinary diameter. In a third, the pressure of a melanotic mass of bronchial glands, had reduced the caliber of the leading bronchus of the right lung, to half that of the left. Laennec esteems bronchial dilatation as almost exclusively the result of catarrh; Andral thinks that it is preceded by hypertrophy of the mucous membrane; Guersent, that it is frequently congenital. It is often associated with dilatation of the air-cells. In a case by Stokes, these were dilated in one lung, the bronchi in the other. The dilatation may be continuous; there may be a succession of dilatations, not unlike bladder-wreck, or there may be one cavity, varying in size from a pea to a walnut. The small, or the large tubes may be indifferently affected, a part, or even the whole of a lung; but, according to Laennec, it is most common towards the anterior margin of the upper lobe. The affected bronchi may become thicker or thinner; while the pulmonary tissue resembles its condition as thrust back by the effusion in chronic pleuritis. The tubes are occasionally obstructed with mucus, or even impacted calculi; and, more rarely, the air-cells are enlarged, some attaining the size of a millet seed, a cherry-stone, or, even, a French bean. In the latter case, Laennec suggests the possible union of several cells. Sometimes the air-cells are dilated under the pleura; at others, air is effused under this membrane. In the latter case, the elevations can be displaced by the finger, in the former, not. In pulmonary emphysema, for so dilatation of the air-cells is named, the lung is enlarged, while the thoracic

parieties are increased. In a few instances it is combined with interlobular emphysema, an accidental and very different affection occasionally extending to the subcutaneous cellular tissue, and sometimes met with in children labouring under croup, violent catarrh, or whooping-cough; also in parturient women, porters, and constipated persons. Piorry ascribes enlargement of the terminal vesicles to the presence of mucus in the ducts, permitting the entrance, but obstructing the issue of air. Pulmonary oedema is another result of catarrh or bronchitis. Andral is of opinion that the intervesicular tissue is its principal seat; yet the free, watery expectoration which attends it, would indicate a different conclusion. It is rarely general, and may be combined with pneumonia, sometimes pulmonary emphysema, and diseases of the heart. According to this last writer, it may be active, passive, or mechanical. In the first, it ensues with intense dyspnoea, the prelude to speedy death; the dyspnoea is less considerable in the second, but a fatal termination, after some days, is not the less imminent; in the third, the dyspnoea is slight, particularly when the patient keeps quiet, and here may have a favourable termination.

Appearances after death correspond with the form and stage of the affection. Recent acute bronchitis presents more or less redness, occasionally softening of the bronchial mucous membrane; this last, however, it would appear from Broussais, is oftenest cadaveric. The redness ensues in patches over the larger or smaller bronchi; but, on the whole, is most frequent at the termination of the trachea. In young subjects, more especially, the bronchial glands are apt to be enlarged. In chronic bronchitis the mucous membrane may be discoloured and even ulcerated, at other times, it is perfectly intact, or paler than in health. A medical man applied to me, labouring under chronic bronchitis with excessive expectoration, so that he himself looked upon it as arising from abscess of the lungs. He died of another disease; but the bronchial tubes and lungs, a few pleuritic adhesions excepted, were totally exempt from alteration. In an old lady, who died of intercurrent pneumonia, after a bronchitic affection of twenty years' standing, besides hepatization of the lower portion of the left lung, and emphysema of the upper, I found anfractuous cavities, with softened tubercle in the right, and tuberculization throughout. In order not to mistake dilated bronchi for abscesses or vomicae, it is expedient to slit the tubes with a pair of scissors. Emphysematous lungs, says Laennec, are firmer than in health; they convey the sensation of a down pillow, and escape from the cavity when the thorax is opened. They are drier than others, and float, or rather lie on the surface of water. When oedema has been extensive and of some standing, the pulmonary tissue, according to the preceding writer, presents a pale grey or yellow tinge; the rosy hue of health is absent, and the vessels are deficient in blood. There is no subsidence on opening the chest; the lungs crepitate, but rather retain the impression of the finger. When cut into, they emit abundance of almost colourless serum; whereas, in the first stage of pneumonia, this is frothy and sanguinolent.

The supervention of bronchitis in eruptive disorders has already been adverted to; but, without denying the influence of specific causes, the existence, and, at any rate, severity of the complication, will be

closely connected with atmospheric influences. The most common source of ordinary bronchitis is the application of cold to the surface, the latter being insufficiently protected, or the circulation languid. It is a popular error, that breathing cold air does the mischief; whereas, the very act is productive of more warmth than air, by force of contact, is able to abstract. The respiratory organs, indeed, in disease as in health, maintain a sympathy with the rest of the system. Dyspnœa, without pulmonary disorder, is frequent in the febrile affections of young persons; but nothing is more common than actual bronchitis in fever. In one of the epidemics of *grippe* or influenza in Paris, Andral mentions that the dyspnœa was extreme, yet he could discover no stethoscopic change whatever in the respiration. Stokes speaks of podagric and syphilitic bronchitis; here, however, I should prefer referring the disorder to ordinary causes. I have often had occasion to advert to the want of balance between symptoms and disease; we may, therefore, admit, with little qualification, the theorem of the last writer, that when the pectoral disturbance is out of all proportion with existing disease, we are entitled to infer sympathetic irritation. When pus or mucus obstructs the bronchial divisions, air hardly acts on the blood; hence, livor of the countenance and extremities, dyspnœa, and general debility. Enlargement of the air-cells is attended with various morbid results, as obstruction to the pulmonary circulation, enlargement in the right side of the heart, venous remora in the brain and abdominal viscera.

The most constant physical sign in bronchitis, is what has been termed a rattle, rale, or ronchus. Should inflammation in the first stage be confined to the large bronchi, the epithet sonorous is prefixed; if to the small, sibilous, sibilant, or hissing. The source of these rales has been sought for in the greater or less constriction of the tubes, and inflammatory turgescence of the lining membrane. As the disease advances, a fluid is secreted which modifies still farther the passage of air; hence, the mucous rattle or ronchus. To this last, Latham, on the ground that the effused fluid is not always mucus, would apply the title, large crepitation. These rattles may be, and often are mixed, leading to a variety of piping and wheezing, audible at a short distance, and even sensible beneath the hand of the observer. Sometimes the rattle is nearly latent; but, if the patient make a forced inspiration, or cough, an astonishing confusion of oscillatory noises is produced, which I can liken to nothing so much as the jangling of a tuncless guitar. They have, however, been variously compared to the voices of unfledged birds, the sounds of a plane, the croaking of wood-pigeons, frogs, toads, or the notes of a violincello. In the inferior and posterior lobes, especially, the mucous rattle sometimes becomes so small and fine, as to border on, or actually to merge into the crepitant. Here, we are bound with Andral, to admit the supervention of pneumonia: yet, I have observed this occurrence in severe cases, in which, at any rate, the subsequent symptoms did not indicate parenchymatous inflammation. In all cases, the vesicular respiration of health is more or less superseded, according to the period, extent, and severity of the disease, by abnormal sounds. The obstruction of a leading bronchus, by a clot of mucus, may lead to momentary suppression of all sound; in other respects, the respiratory murmur varies, as Andral observes, from

dull, or almost absent, to puerile. As the complaint advances, and more especially if it become chronic, the rattlo becomes larger or fuller, constituting the extreme of the gurgling or mucous ronchus. Indeed, when to this are added hectic, colliquative diarrhœa, and night sweats, with, perhaps, puerile respiration, the resemblance to phthisis is very great. Here, as Laennec remarks, percussion will not always assist, for the chest often sounds well in phthisical subjects. If, however, after repeated examinations, pursued through months, we find neither pectoriloquy, the gurgling from softened tubercle, cavernous respiration, nor that habitual absence of sound and respiration indicative of tuberculous engorgement, there is strong presumption that the disease is nothing more than chronic catarrh. Percussion affords no direct sign in acute or chronic bronchitis, inasmuch as the sonoriety of the chest is rarely affected. Narrowing of the bronchial tubes displays more or less dyspnœa, and diminution of the respiratory sounds over the affected parts. Enlargement may be attended with sonoroity on percussion, tubary, and, sometimes, blowing respiration, pectoriloquy, mucous rattle, nummular sputa, and, in a few instances, hæmoptysis. Here the complaint is generally longer in duration than phthisis, unless, indeed, it be united with it: except when produced by whooping-cough, more common in advanced life; the sputa are oftener fetid, and signs of cavernization do not so frequently affect the subclavian and acromian regions. The cavities, in both cases, indeed, are surrounded with indurated lung; but, in phthisis, the dulness precedes, whereas, in bronchial dilatation, it commonly follows the production of the cavity. When bronchial dilatation is extensive, the sound on percussion is comparatively clear, while bronchial respiration is, in every case, present. Emphysema may affect one or both lungs, partially or wholly. If a stethoscope, under these circumstances, be applied to the chest, we are surprised to find the respiratory murmur either absent or excessively feeble. When the disease is inveterate, the dyspnœa is intense, the lips, owing to the ill-oxygenized blood, are violet, and the patient bends forward, in order to gain relief by stooping. At the same time, the difficulty which the heart experiences in driving blood through the lungs, as Laennec, Louis, Andral, and Stokes observe, induces palpitation, and, eventually, hypertrophy, on the right side. Should both lungs be affected, the chest becomes excessively protuberant, even above the clavicles; if one alone, the convexity is partial. In the first, the heart, liver, and abdominal viscera are thrust downwards; in the second, the lateral pressure on the mediastinum forces the heart, more or less, to one side. Laennec considered a crepitant rattle, with large bubbles, a question about which subsequent observers are at issue, also an ascending and descending bubbling sound, as pathognomonic of interlobular emphysema. There is a subcrepitant rattle in pulmonary œdema, which, this illustrious person admits, is not always easy to distinguish from that occurring in pneumonia. Percussion, even, when one lung is affected, unless the œdema be extensive, affords no differential sign. In all those cases, however, as Raciborski justly observes, we must be decided more by the collective, than the individual signs.

Epidemic catarrh or influenza, is essentially a bronchitic affection. Ordinary catarrh is rife in northern regions, but influenza may pervade

both hemispheres: North and South America, India, China, and the intermediate regions, have alike been overrun. Like other epidemic visitations, it is remarkable for the facility with which it bounds from place to place, and for the prodigious numbers simultaneously affected. Catarrh was so general in Paris, in the year 1403, that the courts of justice were closed, an occurrence repeated more than once since. Schmurrer mentions an epidemic equally severe, in 1557, in the same city. In 1580, according to Forestus, catarrh extended over all Europe. In 1729, sixty thousand were taken ill in Vienna. Influenza commenced in the spring of 1775, in Germany, spreading to Hungary in the summer, to England in the winter. The epidemics of 1780 and 1782, implicated Europe and Asia. In the last, the thermometer, according to Mertens, having risen thirty degrees in one night, forty thousand persons became ill in the morning. This epidemic was called *la russe*; the French applied the terms *grippe*, *follette*; the word influenza is of Italian origin. Riverius, Sennertus, Fothergill, Parr, and many others, describe epidemics; I have witnessed four or five myself. The exceeding variety of season which attends influenza, seems to preclude its connexion with mere vicissitudes of temperature. Occasional causes, however, doubtless, possess their influence; and Baker mentions, that the epidemic of 1762, near Lincoln, was both mild and tractable; whereas, in high and exposed situations, pneumonia, pleurisy, and quinsy were frequent and fatal. The disease usually commences with more or less coryza, watering of the eyes and nostrils, headache, anorexia, hot surface, quick pulse, and singular debility, so that young and vigorous adults become unequal to the least exertion. The disease may last from three or four days to a fortnight, and terminate in free expectoration or sweating; often, however, without any peculiar discharge. In the epidemic of 1831, the pulmonary complication was in no single instance urgent, whereas, in that of 1837, obstinate bronchitis or pneumonia, very destructive to the aged and others, frequently supervened. In but too many cases, also, latent tubercles received rapid and fatal development. Sennertus enters fully into the subject in his chapter *De catarrho et tussi epidemia maligna*, occurring in Germany and the lower Rhine, in the years 1564 and 1565.

Slight catarrhal affections rarely receive any treatment; indeed, the popular conviction is against the efficacy of any remedial measures: for, as Laennec has it, *un rhume bien pansé dure quarante jours, et un rhume négligé six semaines*. Yet, the frequent recurrence of neglected catarrhal affections, arising from heedless night exposure, wet, cold, or insufficient clothing, too often leads to chronic bronchitis, hydrothorax, disease of the heart, and phthisis. The practice of treating mild catarrh with diluents, diaphoretics, and expectorants, being calculated, in cases wherein individuals cannot nurse themselves, to lead to fresh attacks, has induced Dr. Williams to suggest the *cura famæ*, at least, abstinence from liquid, and great moderation in solid food, as a remedy. This, at the end of the second, or at most, the third day, is reported to effect a cure; and from partial trials, I should incline to ascribe to it considerable efficacy. The practice of taking opiates at night, and aperients in the morning, is only suitable to some constitutions. Laennec was partial to brandy punch; his nephew, to the syrup of opium. Patience, however, with abstinence, a gentle aperient or two.

carefully avoiding fresh exposure, will remove most catarrhs in a very short time. In cases of severe bronchitis, indeed, we shall be obliged to have recourse to the most active antiphlogistic measures. If the subject be young and plethoric, the detraction of twelve, fourteen, or twenty ounces of blood is indicated, as much with a view to lessen the amount of the circulating fluid, as to diminish excitement, and check inflammation. It is to be kept in mind, however, that inflammation in a mucous membrane is not so readily checked as in the parenchyma of an organ, or the serous tissue. In young subjects, Badham suggests opening a vein in the foot, and immersion of the latter in warm water; I prefer venesection in the arm, however, or a sufficient number of leeches to the upper part of the sternum. So long as the first stage subsists, so long as expectoration has not commenced, and there are severe hacking cough, hot skin, and quick pulse, bleeding, unless in debilitated, broken-down subjects, is urgently indicated. There can be no doubt, indeed, if practitioners were earlier consulted, in children's cases more especially, that this means would ensure resolution in bronchitis much oftener than it is found to do. Unless the dyspnoea and constriction across the chest be very considerable, I do not like to bleed, once free expectoration has commenced, lest this should be checked, and hurtful debility induced. So soon, indeed, as the acute, or early stage of bronchitis has passed over, antiphlogistics must be employed with a sparing hand. When bleeding in the arm has been resorted to, and we are doubtful as to the propriety of general depletion, leeches to the upper part of the sternum, under the clavicle, or in the axilla, answer a very good end. I have also employed cupping between the scapulæ with advantage. The effects of loss of blood must be attended to in young children; I have known three leeches to the neck, in a case of infantine bronchitis, undue stupor being employed afterwards, to induce syncope, convulsion, and cold extremities; effects combated with difficulty, by means of baths, opiates, wine, and soups. Hence the propriety of the general caution of arresting hemorrhage in such cases, when needful to do so, by means of a point of the nitrate of silver. Care must be taken not to expose the thoracic parietes, since this may work more mischief than leeches are productive of good. The bleeding, if requisite, may be encouraged by cataplasms; these, however, must be removed in time, and a warm dry cloth substituted. Blisters should never be applied in the incipience of inflammation, and certainly not in bronchitis. They can only reflect fresh irritation on the affected organ, and aggravate the general uneasiness and distress. Afterwards, indeed, when the disease is on the decline, counter-irritation may be productive of great advantage. A vesicating tissue has been substituted as a neater application, and it is recommended to cover the blister with silver paper. These irritants are generally kept on too long, but they rarely occasion strangury, as has been alleged. When the constitution is very irritable, or the patient subject to insomnia or nocturnal cough, Broussais prefers fomentations or cataplasms of linseed meal, bran, or bread crumbs; and he mentions an instance in which a large one applied to the front of the chest, induced immediate relief in catarrh of thirty-seven days' standing, and in which, six successive blisters were of no avail. Moderate purgation is useful in various ways, cooling the system, and permitting freer descent of

the diaphragm. Aperients, however, in the advanced stages, must not be pushed too far, since they needlessly weaken the patient, and may induce fresh risk from cold. Like blisters, they have been frequently abused. Concurrently with the foregoing treatment, I always administer tartrate of antimony in solution, say half a grain to the ounce, in some aromatic vehicle, by tablespoonsfull to adults, proportionably less to children, every hour. Should vomiting ensue, relief is commonly rapid, but there must be a longer interval in repeating the dose. An initiatory emetic, more especially in the cases of children, is always useful. Tolerance of the medicine is affected and lessened by the presence of food in the stomach; indeed, the lightest and mildest nourishment only should be permitted, and that in the more advanced stages. In the event of diarrhœa, a small proportion of the tincture of opium must be added. Great variety, however, is observable in the operation of the remedy. The good effects which we anticipate from antimony, and, convertibly, from ipecacuanha or squills, whether singly or in combination, are diminution in the quickness of pulse and respiration, looseness of the cough, and outbreak of moisture over the surface. In those cases in which I resorted to the lobelia inflata, I found it productive of great sickness and distress. Sometimes there is recrudescence of the inflammation; the pain increases, the pulse rises, and the expectoration is arrested. In such cases, as also when acute inflammation supervenes on chronic, we shall be obliged to have recourse to venesection or leeching afresh. Here, however, as Stokes observes, we must not confound retention with suppression. The former may arise from visciditv of the bronchial mucus, and in advanced stages, from weakness. In the event of impacted expectoration, an emetic is urgently indicated. If such had been employed in the two cases cited from Andral, the event would probably have been otherwise. Thus, in a patient of Piorry's, extreme dyspnœa ensued after slight bronchitis; the countenance was bluish, the respiration fifty, and the pulse much accelerated. The thorax sounded well on percussion, but while there was puerile respiration in the left side, it was wholly absent in the right. Repeated warm drinks were given, while the throat was irritated with the finger, so as to induce vomiting. At the end of two hours, after a strong fit of coughing, a fragment of concrete mucus, a couple of inches long, and half an inch thick, was spat up, with instant mitigation and return of the respiratory murmur. Sometimes dyspnœa is relieved by inhaling the vapour of warm water. When the disease wears towards the close, or when it tends to chronicity, the qualified employment of tonics and stimuli, carbonate of ammonia, wine and opium, proves requisite. These, however, must be cautiously resorted to, watching their effects, and qualifying or superseding them accordingly. Opiates are sometimes necessary at night, to allay cough and procure rest; but if carried too far, they arrest or lessen expectoration. Chicken broth, beef tea, panada, and cooling fruits may be given with cautious reserve. In all cases, we must be exceedingly careful to guard against relapse, and avoid after recurrence of the disease. The temperature of the apartment in winter must be regulated by a thermometer, which may be permitted to range from sixty to seventy degrees.

As to the treatment of chronic bronchitis, the more recent the affection, other circumstances alike, the more curable will it prove. A warm bath, occasionally—Broussais, however, prefers hot sand or ashes, frees the surface from adherent sordes, and promotes expectoration. The temperature should be maintained by due attention to outward clothing; flannel, and even chamois-leather coverings, according to the season, being employed with advantage. Cold sponging or the shower-bath, should the patient so far recover as to permit its employment, will go far to exonerate him from fresh attacks. As to the immediate remedies in chronic bronchitis, emetics, when they can be borne, deservedly hold a high place; for this purpose, antimony, squills, ipecacuanha, the sulphate of zinc or copper, in sufficiently large doses, may severally be employed. A tepid draught previously, renders their operation less fatiguing; and it may be further assisted by tickling the fauces and inclining the shoulders forward. Repeated for some time, every morning and night, or on alternate days, when the stomach is empty, emetics will be found productive of considerable relief; it is obvious, however, that there must be limits to their employment. Some practitioners are fond of terebinthinate and stimulating expectorants, as turpentine, copaiva, camphor, ammoniacum, and ammonia. Stokes speaks well of the decoction of *polygala senega*. *Stramonium* or tobacco, smoked, is sometimes an efficacious palliative; opiates, however, prove much more so, but they tend to lessen expectoration, and are very liable to abuse. In cases of great debility, I have found tonics, stimuli, and nutritive food among the best expectorants. Exutories, says Broussais, are indispensable in chronic catarrh; he prefers those as the issue or seton, which divide the skin and induce suppuration in the cellular tissue. If, however, infiltration and œdema have commenced in the eyelids and feet, he counsels the suppression of these and all other debilitating remedies. Moxa is employed by French, but not likely to become a favourite with British practitioners. In young subjects, I have found both the issue and the seton of very decided efficacy; in other respects, I have tried tartar-emetic or croton-oil frictions, the application of turpentine, acetic, and diluted nitromuriatic acid, with variable advantage.

III—PLEURITIS, PLEURISY.

This frequent disease may subsist alone, or it may be combined with pneumonia, bronchitis, pericarditis, endocarditis, and even peritonitis. Pleuritis may be either acute or chronic, latent or manifest, general or partial: the terms interlobular, diaphragmatic, and median, according to the seat, have also been applied. It ensues in the circumscribed form in chronic bronchitis and in phthisis. The symptoms of inflammation of the pleura are general fever, sometimes preceded by rigors, flashes of heat over the surface, dyspnoea, and an acute darting pain, as if the claw of a bird or a sharp instrument were entering the side. The pain is seated below the mamma or on one side, and may precede the fever, or the fever the pain. It has been alleged that pain has been felt on the sound side, an occurrence which I never had occasion

to witness. The fever is worst at night, but is liable to exacerbations and remissions. In some cases, the patient, owing to the sudden stitch or catch in his side, will start up and press his hands on the affected part, more especially on coughing or attempting a long breath. He will be able to take in more air if he inspire slowly, but never so as to satisfy his instinctive desire, the tearing and lacerating sensation occasioned in the inflamed pleura, by the rising of the ribs and expansion of the lung, proving an effectual preventative. Hence respiration is more abdominal than thoracic, particularly in diaphragmatic pleurisy. The *risus sardonicus*, in a few rare instances, has been known to attend the latter. Some patients are best able to lie on the affected side, particularly in the event of effusion, and many not; while others prefer reclining on the back, or half turned. Pleurisy is attended with a short dry cough, and, perhaps, a little mucous expectoration. In the case of pleuro-pneumonia, the cough is greatly aggravated, and attended with the usual rusty viscid sputa. Should inflammation affect both sides, the general distress is greatly increased. In one instance—the only one I have met with, pleurisy, after being subdued on the right side, reappeared, with copious effusion, in the left. The addition of pericardiac inflammation is marked by tumultuous, irregular pulse, local pain, and uneasiness, perhaps, palpitation. Some constitutions, however, are so little irritable, that the foregoing symptoms may, in a great measure, be absent. Several persons with effusion have applied to me, without my being able to learn that they had ever laboured under the symptoms usually ascribed to pleurisy; and pleuritic adhesions, it is well known, are very common after death. The symptoms may go on progressively increasing till the patient expire, but, more commonly, copious effusion ensues in the affected side, with abatement of pain, more or less shortness of breath, general uneasiness, and fever, in a word, chronic pleuritis. This may last a considerable time, with hectic and disease of the compressed lung, the heart being thrust to one side, the patient dying exhausted, or in a paroxysm of dyspnoea. Very often the fever declines consentaneously with the effusion; so that the latter may subsist for months, with little or no derangement in the general health. Pleurisy rarely terminates fatally; and with early, active treatment, I do not consider effusion common. The pulse gradually falls, pain and dyspnoea disappear, while the appetite and strength are repaired. In other cases, effusion may fill the chest in four and twenty, or eight and forty hours; and a case is mentioned by Cruveilhier, in which there was dulness on percussion—a thing that never happens within so short a period in pneumonia, in which the dulness is also more restricted, twelve hours after the commencement of the disease.

It is to be presumed that the serous membrane, in the first stage of pleuritis, becomes red and injected, and ceases to be lubricated with its peculiar fluid. In the event of effusion, the lung will be thrust, more or less, to one side; sometimes the cavity is quite filled; at others, the fluid is contained in sacs formed by old or recent adhesions, to which, when double, the epithet bilocular has been applied. In interlobular pleurisy, cysts of pus or serum may form between the lobes. The effusion varies from a few ounces to some quarts. It may be clear and limpid, or of a yellow hue; serous, sero-purulent, or sero-sanguinolent; or it may consist wholly of green, yellow, or brown pus, and, in a few in-

stances, of blood alone; occasionally, air is present. A frequent occurrence in pleurisy, is the formation of false membranes. Sometimes flocculi of coagulable lymph float through the serum, or are precipitated to the bottom. The false membranes generally coexist with the effusion, or remain after the latter has been absorbed. They are, at first, soft and creamy, but afterwards acquire both firmness and solidity. Sometimes they are absorbed, but, more commonly, become organized, and may prove the seat of inflammation and various morbid products. I met with an instance in which the false membrane consisted of six or seven layers, the result of so many different attacks of neglected inflammation. The whole was of the thickness, and had very much the colour and consistence, of boiled tripe. Coagulable lymph may exist in the form of masses or tears, but is more usually distributed over the periphery of the pleura. Its free surface is less firm than that which comes in contact with the pleura itself, and projects in ragged pendulous filaments, often forming attachments to the opposite pleura. Tubercular degeneration is that which we most commonly have to encounter. The development of tubercles is often very rapid, Andral having detected them in false membranes of fifteen days' standing. Cruveilhier witnessed them large as a nut, when the false membranes were of ancient date. Andral and Carswell detected cancerous degeneration; and while dissecting at La Pitie, I witnessed conversion of false membranes in an elderly female, into a bony plate. When effusion has subsisted long, the lung is thrust back, so as to form a sort of layer along the vertebral column. In this state, it is often diseased, and sometimes bound down by false membranes. It was at first supposed, when this arrangement came to be discovered, that the lung had suppurated and disappeared, but Andral affirms that it may generally be distended by blowing into it. In the seventy-first volume of the *Annali Universali* of Omodei, however, I find a case of traumatic empyema by Linoli, in which the right lung, it is asserted, was absent: *tutto il polmone destro distrutto, convertito in marcia, ed annichilato in maniera da non riconoscerne le vestigia*.

Succussion was known to the ancients, but is not now often resorted to as a means of diagnosis. Palpation, however, is very proper, since, by the judicious varying pressure of the fingers, we can frequently discover whether the pain be seated in the skin, muscles, or pleura itself. The contact of the hand, also, helps to decide the presence of fluid, since, in this case, the vibration ordinarily communicated to the parities is not felt. Simple inspection, indeed, whether in the case of copious pleuritic effusion, or pneumonic hepatization, reveals the cessation, more or less perfect, of intercostal and diaphragmatic muscular action. Effusion, even more than hepatization, increases dulness on percussion; there is a dulness, *tanquam percussu femoris*, as if the thigh were smitten. The dulness in pneumonia, where it subsists, is not so considerable, and, moreover, it very rarely, indeed, extends to the whole lung. Pneumonic dulness, however, may subsist in the upper part of this viscus. Andral mentions several instances in which pneumonia extended to the whole lung; and describes how he himself, as well as others, committed an error of diagnosis in trusting exclusively to percussion, stating, with the laudable candour of a man of science, that he had announced general effusion, when the dulness was owing to pneumonic induration alone. Should the patient change his posture, the cavity

not being full, and no adhesions formed, dulness follows the altered level of the fluid. In the erect or sitting posture, it is most apparent at the inferior and posterior angles of the thorax, the fluid descending behind the pillars of the diaphragm. In extreme cases, however, it may extend to the infra-clavicular, sternal, and scapular regions, even beyond the mesial line. In this state, a single tap declares in a moment, the condition of the parts. It is necessary, however, to inquire into the state of every portion of the chest. Hope mentions an accomplished physician, who, having examined the top of the lung only, and finding it dull, set the case down to phthisis. The character of the dyspnœa, however, having been described to the former, he pronounced it pleuritic, and so it turned out. Times without number, indeed, pleuritic effusion is either wholly overlooked, or confounded with phthisis. When only a small quantity of fluid subsists, particular attention is required for its detection. Should pneumonia, as often happens, co-exist, the crepitus and other signs will be rendered apparent by making the patient, as Reynaud advises, lie on his face. Here, however, Piorry warns us not to mistake the dulness arising from the greater proximity of the heart to the ribs, for that of displaced effusion. Adhesions, also, may prevent a change of situation in the latter, and even circumscribe a free space over which the sound is natural, though dull around. Excessive pleuritic effusion on the left side, displaces the heart to the right, while the subsidence of the diaphragm thrusts the spleen, as in other cases the liver, below the ribs. It is necessary, however, not to confound this condition with traumatic or congenital dislocation of the heart to the right, of which last I met one instance in the person of a gentleman who died of phthisis. Effusion on the right side, again, as I have had occasion to observe, displaces the heart still farther to the left. Townsend mentions a case in which the latter had got so far as the left axilla. Stokes gives several examples of these remarkable occurrences, and makes the interesting observation, that they may take place with little pain or general derangement, and without affecting the rhythm of the important viscus concerned. Comparative mensuration of the thoracic parieties with a graduated tape, from a fixed point on the spine to another on the sternum, not only demonstrates the presence of effusion, and consequent protuberance of the affected side, but the occasional depression of the shoulder and subsidence of the thoracic parieties, from absorption of the pleuritic effusion. One condition, as well as the other, the patient only becoming aware of the circumstance by accident, has frequently been known to take place. In case of effusion, the depressions between the ribs may not only disappear, but the intervals become actually protuberant. This occurrence is ascribed, by Stokes, to paralysis of the intercostals; though, after paracentesis, I have observed these muscles, previously passive, to act immediately, and the respiratory murmur to pervade the side as before. More or less dulness is apt to remain for some time in the inferior and posterior region of the chest, after the cure of pleurisy. This has been ascribed to false membranes; but Corvisart affirms that the pleura, even on the fourth day of inflammation, may become thick enough to induce dulness. In other respects, we are advised by Piorry to percuss these regions lightly at all times, lest obscurity produced by the liver or spleen should lead to erroneous inferences. Some

prefer the finger in these examinations, as Piorry does his pleximeter; either will prevent the shock produced by immediate percussion.

As considerable pain is commonly associated with pleuritis, the patient inspires less forcibly, and less air enters the affected lung; hence, the respiratory murmur will not be so distinct over the inflamed, as the sound side, in which the respiration, in case of effusion particularly, is observed to be somewhat puerile. The respiratory murmur, of course, becomes extinct coincidently with the presence and amount of the fluid. When the latter, however, is limited, the respiratory murmur, at the upper part of the chest, diminishes in intensity, or becomes feeble, and, as Piorry observes, appears to retire to a distance. If the ear or stethoscope in this case, be applied to the chest, a bleating, tremulous sound, known by the term *ægophony*, is imparted to the patient's voice. *Ægophony* is most readily discoverable at the inferior, interior angle of the scapula, and between this and the spine; but, if the water-line of the effusion, Piorry affirms, be determined by percussion, it may be heard all round. *Ægophony* merges, at times, so into *bronchophy*, of which it is but a modification, that it is not always easy, nor indeed very important, to say where the one ends, or the other begins. As effusion ensues less rapidly in young and vigorous persons, these respiratory modifications in such, are not so readily detected. When the fluid is very copious, bronchial respiration and *ægophony*, owing to the compressed state of the lung, are absent; but, when the former is in process of absorption, the latter—*ægophonia redux* of Laennec, is again heard; at the same time, coincident with the cessation of dulness, the respiratory murmur returns, reappearing at the upper and anterior part of the thorax first. Sometimes the fluid is retained, by adhesion, at the anterior or upper part of the chest, simulating pericardiac effusion, with dulness on percussion. The sounds of the heart, however, independent of other stethoscopic indications, are more distinct than in the latter. As might be presumed, beforehand, and as shewn by Andral and Reynaud, there is a motion of ascent and descent during respiration, which, when the pleura becomes covered with false membranes, leads to various abnormal rubbing sounds. In a case by Raciborski, a fibrous connexion subsisted between the pleuras giving origin to a creaking like that produced by new leather, *bruit de cuir neuf*; in another by the same writer, a fine but superficial crepitus was heard. Progressive effusion, it is obvious, by keeping the parts asunder, will suspend these sounds till the reduction of the fluid, by absorption, shall again permit them to come in contact; hence correlative indications of the progress of the disorder. No peculiar auscultatory signs, further than those already mentioned, subsist in partial, interlobular, diaphragmatic, mediastinal, or costal pleuritis. Restricted inflammation, marked by stitch and difficulty of breathing during life, with or without adhesion and effusion, discoverable after death, is, however, often to be met with.

The usual causes of pleuritis are exposure while the body is heated, and the long-continued operation of cold and moisture. I knew an instance in which it was apparently produced by a long ride on a high-trotting horse; and Broussais mentions its occurrence among artillery-men after working the guns. External violence, blows and wounds, are not very unfrequent sources of pleurisy. Chronic disease of the lung, and

the irritation of contiguous tubercle, will lead to it; tubercular perforation, indeed, is obviously productive of the disorder. The former, however, is an infinitely more frequent source than the latter. Pleuritis, is often observed in connexion with the febrile exanthemata; puerperal women, also, are more or less liable to the complaint. Cruveilhier mentions an instance in which a woman was seized with a shivering fit; eight days after, she was delivered of a still-born child, in whom pleuritic effusion and false membranes were detected. In other respects, the causes productive of pleuritis are equally so of pneumonia; hence the frequent occurrence of pleuro-pneumonia.

Few diseases, with early and active treatment, are more amenable than pleurisy; but, if this be neglected or impracticable, the complaint gains head, and leads to results that are comparatively difficult of removal. The great thing is to see it early, and to treat it energetically. I got rid of the disease, in my own case, on the fourth day, by stringent alternate bleeding, cupping, leeching, tartarized antimony, and starvation. A lady coming down stairs after her confinement, met a chill blast from the open hall-door, hence rigors, violent fever, and pleuritic inflammation. A little food with brandy and water, were improperly forced on her, and she spent a wretched night. I bled her copiously in the morning, and applied eighteen leeches with great relief. The amendment continued at the evening visit; but, during the night, being sent for, I found the pain and fever extreme, and the dyspnoea such, that the patient was obliged to sit up in bed. Again, I bled her largely, and administered antimonials and gentle aperients. Next morning, I applied a couple dozen leeches, and, as she seemed unfit to undergo further depletion, I administered, every four hours, four grains of calomel and half a grain of opium. In twenty-four hours the mouth was sore, a gentle perspiration covered the surface; while pain, fever, and dyspnoea, had alike disappeared. From the foregoing, it will be evident how necessary it is to give directions to be sent for, at whatever hour of the day or night there is the least trace of recrudescence. It is erroneous to suppose that copious bleeding is unduly weakening, since it is far less so than moderate depletion and the continuance of the disease. In fact, a couple of early emissions, by a large orifice, of from twelve to fifteen, or twenty ounces each, will do more to dissipate the complaint, and, of course, to preserve the strength, than perhaps twice the amount in smaller quantities, at longer intervals. The one overtakes the disease and masters it, the other only weakens and harrasses the patient. The amount to be taken away will depend on the strength of the individual, as well as the severity of the disease; and cannot be exactly apportioned beforehand. If a good orifice be made, the patient sitting up or standing the while, the circulation will soon be influenced; and by the time he gasps a little, and the pulse begins to flutter, it will be proper to tie up the arm. I have only to put in a caution, that some persons apparently strong, do not bear bleeding well; while others, comparatively weak, lose large quantities without fainting. In the first case, the vein may be kept open a little longer, and, in the other, we must bandage the arm rather sooner than we otherwise would. I do not suffer real or apparent debility to prevent me from bleeding, well assured that the detraction, however copious, will entail less debility than

the disease. I have reluctantly tied up the arms of poor feeble creatures whose flaccid muscles hardly resisted the pressure, yet, in whom the abstraction of a few ounces induced lasting relief. It is not, however, so much the remedies we employ, as the manner in which we employ them, that does good. A patient bled in the morning, must be seen before night; and then, if the pain, fever, and dyspnoea continue, or have increased, let the vein be opened afresh. Similar cautions are applicable to the ensuing visit. In fact, if we suffer the complaint to raise its head at all, it will only entail loss of time and precious means, and subject the sufferer to the risk of effusion, false membranes, and a tedious recovery. The blood in pleuritis is buffed and cupped, so universally, indeed, that certain French writers name this condition of the vital fluid, *couenne pleuritique*. As the inflammation declines, so does the condition in question. Coincident with venesection, it is well to cover the affected points with one, two, or three dozen leeches, and after they fall off, to apply a stupe, or large cataplasm, followed by warm, dry cloths. Cupping is a tolerable substitute for leeches, when the latter cannot be procured. I always employ the tartrate of antimony, either with an aperient, or alone; and, perhaps, with the addition, in vigorous subjects, of the tincture of digitalis. The general inflammatory excitement is thus lowered; and the reaction, apt to ensue after blood-letting, counteracted. Purgatives, as Baglivi advises, must be cautiously employed at those seasons, spring and winter, namely, in which pleuritis is most frequent. Slightly tepid drinks are better, both in pleuritis and pneumonia, inasmuch as perfectly cold ones induce more or less local reaction. Oranges, grapes, and other sub-acid fruits, may be used in moderation. Adults, very weak persons excepted, are best without food; but, as children support starvation ill, a little very thin panada or gruel may be allowed. The French, *lucus a non lucendo*, apply the term *diete* to entire abstinence. The tartrate of antimony is further useful, by taking away the desire for nourishment. It is of great importance to refrain, as a single indulgence of appetite may wholly neutralize previous treatment, and expose the patient to great danger. Blisters in the acute stage, though some think differently, increase the fever, and add to the disease; they are best suited to its decline, in which they further help to keep the patient quiet in bed. In all inflammations, however, whether on serous or mucous surfaces, or in the parenchyma, there is a period beyond which it will not do to push depletion. Here we have a valuable auxiliary in calomel and opium, or in opium alone. I generally employ both; but, as there may be some in whom we should not choose to induce the mercurial influence, it is satisfactory to know, that a grain of opium, every six hours, guarding against costiveness, may prove of the greatest utility. If mercury be administered under proper circumstances, the fever and inflammation almost invariably cease from the moment the mouth is affected. When time is an object, and the case very critical, I have superadded mercurial frictions with every advantage.

As to chronic pleuritis, it was once supposed that hydrothorax was a common affection; but, when not arising from morbus cordis, general dropsy, or mere cadaveric transudation, it is, in every instance, the result of pulmonary, and, more especially, pleuritic disease. Effusion

may subsist after acute, as in chronic cases, without any general febrile disorder whatever, and, certainly, without sub-acute or chronic inflammation. When, however, dyspnoea, local uneasiness, a quick, irritable pulse, dulness on percussion, absence of the respiratory murmur, and, perchance, ægophony, awaken well-founded suspicion, we may resort to alternate leeching and blistering, squills, mercury, iodine, digitalis, mental quietude, and the recumbent posture. The constitutional powers, however, are not to be unduly depressed, since, without the *vis medicatrix naturæ*, our diuretics would be of little avail. Laennec mentions a case in which the effusion, of some weeks standing, was so considerable, that paracentesis was apprehended: large doses of nitre, however, induced so copious a diuresis in twenty-four hours, diminishing, at the same time, the size of the chest, that the subject, a child, speedily recovered. Hope, also, relates recovery consequent on hydragogue cathartics. In fact, pleuritic effusions, if the patient have any vigour of constitution, and do not unduly expose himself, very often disperse of themselves. They may, however, persist for months, perhaps for years. It is only recently that two persons applied to me, one with effusion in the right, another, with effusion in the left side. The latter had been long ailing, but was quite unaware of acute disease; the other, who suffered comparatively little, had had pleurisy eight months previously. One I cured by copious blistering, before and behind, with mercury internally till it touched the mouth; the other I lost sight of. Broussais lays great stress on hindering the patient from gratifying his appetite, even with soups, since exutories and blood-letting, without abstinence, are of little avail. Hope, however, esteems the starving system erroneous, puts the patient on a full regimen of animal food, and trusts to free salivation with calomel, opium, and copious blistering, for a cure. He affirms, that if Stokes have cured twenty cases running, by means of Lugol's solution internally, blisters, and the ointment of iodine, externally; he has cured, without selection, fifty-three successive cases. In other respects, this writer prefers eight-grain doses of the iodide of potassium, in pills made up with bread. I would not ascribe the rapid pulse, in every case, to mere anemia; hectic, from chronic irritation, and pulmonary disease being, unhappily, of not unfrequent occurrence. There is a limit, however, to every system of treatment; and it will happen, in spite of all our efforts, that effusion and dyspnoea increase, so that without an operation, death ensues. This, in a few instances, when early performed, in the hands of Davies and others, has been permanently successful, but it is too often otherwise. Broussais objects to it altogether: the lung, he says, is commonly diseased, the pleura loaded with false membranes; and communication with the atmosphere, by tending to fresh irritation, decomposition of the effused fluid, and hectic fever, breaks down and utterly destroys the poor remnant of the patient's strength. Nature, however, sometimes takes the case into her own hands; and, independent of intercostal openings, a sero-purulent discharge, perhaps tinged with blood, by means of a fistulous communication with the bronchial tubes may ensue, often with recovery. I performed paracentesis in a case in which the effusion was so great, and dyspnoea so distressing, that the patient, apparently, could not survive many days. After previous incision with a scalpel, I thrust the trocar just

over the seventh rib, where interdigitations of the serratus major close with those of the obliquus muscle. Upwards of a wash-hand bason full of yellow serum rushed out with prodigious relief, and some months' respite. A valvular opening is recommended; but an incision between the fifth and sixth ribs, whereby the liver and diaphragm will be avoided, answers every purpose. In a case which I saw operated on by Dupuytren, several quarts of fetid green pus were withdrawn, but the patient did not long survive. The term *paracentesis thoracis* is better than that of operation for empyema, since serum is more commonly met with than pus. When the fluid, as sometimes happens, points through the chest, which has been termed the empyema of necessity, the integuments become soft and boggy, and should be divided. Among others, the case of Dr. Wendelstadt, in whom a fistulous opening remained many years after paracentesis, is cited by Townsend.

IV—PNEUMONIA.

THIS frequent and destructive disease is much better known since a more improved diagnosis has enabled us to discriminate it from bronchitis and pleuritis; also, to detect its existence as a complication. Inflammation of the lungs usually occurs in the acute form. Certain practitioners, as Chomel, Bouillaud, Broussais, and Lallemand, incline to the opinion of tubercles being a form of chronic pneumonia. Pneumonia may affect one or both lungs: it may be central or superficial, and confined to a lobe or lobule. It is more common in men than women, in the right lung than the left, in the lower than the upper portions. The symptoms are fever, perhaps preceded by rigors, hot surface, loaded urine, quick, hard pulse, accelerated breathing, dyspnœa, pain, and expectoration. There is great variety, however: some symptoms may be prominent, to the exclusion of others; while, in aged or young persons, and in fever, whether simple or eruptive, the disease is often latent. It may last from four or five days, to one, two, or even three weeks. Some pathologists aver, that pain is never met with unless in the event of pleuritis; others, that it does occur whether pleuritis prove an adjunct or not. It often, however, hardly amounts to a dull, ill-defined uneasiness, and, perhaps, diminishes in the second stage. In every fatal case, says Andral, in which there was pain, whether on a level with the *mammæ*, or below the ribs, the pleura was inflamed and covered with albuminous exudations. Bouillaud affirms, that pleurisy is coincident with pneumonia, in nineteen cases out of twenty; but this universality is denied by Laennec and others. The dyspnœa is not always in proportion to the respiration, since it may be considerable when the latter is hardly quicker than natural, and conversely. Both commonly bear relation to the extent and intensity of the inflammation. Bouillaud asserts, that dyspnœa, as well as delirium, is greater in pneumonia of the summit, than of the base of the lung. Should it be considerable, the least muscular effort becomes productive of distress; patients, as Andral remarks, complain of a crushing weight over their chests; they only seem intent on

the act of breathing; the face is livid or pale, the nostrils expand, while every thing is indicative of anxiety and suffering. The decubitus is variable, being sometimes on the affected, sometimes on the sound side; but, oftener on the back. At first, the cough is slight, with a little mucous expectoration; in children, and in complicated cases, this may be wholly absent. The sputa, in the second stage of pneumonia, are copious, transparent, of a greenish yellow, but, more frequently, rusty hue, from the admixture, probably, of a little blood, and are so tenacious, as to adhere without falling out, when the vessel containing them is reversed or shaken. Resolution may now take place; but, should the disease continue, the sputa, owing to the intermixture of pus and mucus, lose their viscid character, and assume an ashy, but, more frequently, a sanious aspect, like liquorice water, or the juice of stewed prunes. Andral has met with this occasionally during the period of red hepatization. Some, however, do not spit at all during the course of pneumonia; while, in others, the expectoration is mucous or mucopurulent throughout. The breath may be fetid, without the sputa becoming so; in the latter case, pulmonary gangrene has ensued. In the event of recovery, the expectoration diminishes in quantity, loses its peculiar character, and assumes, by degrees, the sparse aspect of health. There may, however, be exceptions to this; as in a case by Andral, in which a man of fifty-nine was attacked by pleuro-pneumonia in the left side. On the third and following days, there were viscid, rusty sputa, with copious sweating. By the eighth and following days, there was general amendment; but the expectoration continued the same for eight or nine days after every other symptom had subsided. In another, by Stokes, there was intense pleuro-pneumonia following injury; but the viscid red expectoration persisted for weeks after every trace of hepatization had disappeared. On the other hand, I have known cases, mostly, however, those of infants, in which I detected red, and even grey hepatization after death, without either cough or expectoration, hardly perhaps dyspnoea, during life. Partial or lobular pneumonia is not infrequent in measles and scarlatina. Gangrene of the lungs is attended with putrid sputa, general prostration, cold sweats, delirium, and weak, thready pulse. The brick-red colour of the cheeks is characteristic of pneumonia; it is, however, aggravated by lying on one side. Should pleuritis or bronchitis complicate the disease—and Bouillaud affirms that the latter has always a tendency to induce peripneumony, the symptoms will be indicative accordingly. Critical discharges rarely attend pneumonia; a case, however, is quoted by Andral, from Latour, in which the patient, having been bled, blistered, and leeches without relief, suppression of urine ensued, followed in some hours by the discharge of a pint of blood from the urethra, and perfect recovery. Stoll speaks of the resolution of pneumonia concurrently with diarrhoea; and Peter Frank relates instances in which it was cut short by the supervention of copious sweating, or the passage of purulent urine.

In well-constituted subjects, when pneumonia has been actively treated, convalescence is not long protracted; but, in the broken-down and debilitated, as in very young and aged persons, also complicated cases, as *pneumonia typhodes*, the pneumonia of typhus, it is, as I have often witnessed, apt to be tedious. In some instances, the acute

stage passes away, but the patient continues short-winded, the pulse quick, with local uneasiness, and, perhaps, slight crepitation; chronic induration, in a word, has ensued. As I said before, however, what some consider chronic pneumonia, others regard as pulmonary tuberculization. I have, certainly, often witnessed the supervention of phthisis, after pneumonia and acuto bronchitis more especially. There is frequently, says Broussais, owing to weak capillary circulation, and the facility with which pulmonary transudation is suppressed, a predisposition to chronic induration. Such results, he informs us, are common among soldiers. Unhappy is he who lies down to sleep chilled after a painful march; in place of deriving advantage from his slumbers, he imbibes the germs of death. The rapid supervention of tubercles, says Andral, is too frequent a cause of bastard convalescence, and slow disorganization of the pulmonary parenchyma. Tubercles, indeed, may be developed, even after the chest becomes sonorous on percussion, and the respiration free, though more puerile than natural. This writer admits a chronic engorgement or infiltration of the lungs with blood or serum, but which, so far from being benefited by antiphlogistics, is dissipated by tonics. In fine, he agrees with Laennec, as to the extreme infrequency of chronic inflammation, apart from melanosis or tubercle. Corrigan, under the name of cirrhosis, has described fibrous induration of the lung, with dilated bronchi and absence of the vesicular structure, which, he conceives, has frequently been mistaken for phthisis. Bayle mentions a case of chronic induration of the lung which had been esteemed phthisical; Chomel, however, relates but two instances of the kind in the post-mortem examinations of sixteen years. Bouillaud likewise assents to the excessive rarity, tuberculization apart, of chronic inflammation, and this after fourteen or fifteen years' attention to the subject; and, further, arrives at the conclusion, that, in the immense majority of cases, tuberculization is neither more nor less than a chronic form of pulmonary inflammation.

Of the mortality, whether absolute or relative, of pneumonia, we have no very extensive records. From a report with which I was favoured by Dr. Torrey, of the annual interments of the city and county of New York, for 1838, the whole mortality in pneumonia amounted to six hundred and thirty-nine, in a population of about two hundred thousand, which yields a considerable frequency as to the disease. Mann, in his sketches of the campaigns in 1812-13 in the United States, dwells on the prevalence and destructiveness of pneumonia among the soldiers. In some parts of that country, the disease, probably from the cold surface and absent reaction, has received the popular designation of cold plague. Out of one hundred and seventy-five cases, at one time in the hospital of Milan, one hundred and forty-two, according to Acerbi, were those of pneumonia, shewing great frequency and proportionate mortality in the disease. Madrid is seated on an elevated treeless plain, and however hot the sun, a blast will come which chills to the quick; hence the preponderance of pneumonia, notwithstanding the large cloaks worn by the inhabitants. Out of one hundred and twenty-three cases under Chomel, forty, according to Louis, perished; also two-fifths of those under Gueneau de Mussy, in the Hôtel Dieu, in 1829. In the hospital Cochin, under the charge of Bertin, in 1822, one in four died. Laennec claims only one in twenty-eight; but, out

of the fifty-seven mentioned by this writer, Bouillaud shews that six died, Laennec having struck off some fatal cases in which his method had not been tried. Lecouteulx, however, who, in 1825-26, was clinical assistant at La Charité, under this practitioner, informs us that twelve in thirty, or two-fifths of the whole were cut off. Bouillaud lost but one patient in eight and a half; and observes that one in three being the current rate, the mortality would be greatly reduced by his method. In elderly persons the loss is always considerable; few aged females, says Rostan, escaping when seized with pneumonia in the Salpêtrière.

Pathologists have divided the changes in pneumonia into engorgement, red, and grey hepatization. Opportunities of seeing the first alone, are not frequent, but it is commonly associated with ulterior changes. In simple engorgement, to which some would apply the term splenization, the lung has not wholly ceased to crepitate, nor is it, by any means, so friable as in the second stage. The reddish brown colour of the affected portions is very different from the pale rosy hue of health. If the viscus be cut into, a frothy serous fluid, mixed with blood, flows out. Lorinser is of opinion that more or less coagulable lymph is, at the same time, effused with the serum. In aged persons who have lain long, also in disease of the heart and great vessels, a similar condition, which, in the former instance, has been styled hypostatic pneumonia or hyperœmia, and which cannot well be considered inflammatory, is induced. Here, it is well observed by Piorry, that the crepitant rattle and sanguinolent sputa, are after phenomena. I have met with this condition when there had been no sign or symptom indicative of inflammation. Pneumonia, in the second stage, obtains the appellations of red hepatization and carnification. A multitude of small red granulations, exceedingly like the acini of the liver, are visible on inspection; hence the similitude and the name. The excessive accumulation of blood renders the lung, in this condition, extremely friable; it cannot sustain its own weight; the pressure of the finger, even, reduces it to a pulpy mass. Should a section be made, little fluid exudes. Though styled red, the colour, to a certain extent, is variegated. The vesicles are now wholly impervious, and if a portion be thrown into water, it sinks, like the lung of the fetus, to the bottom. In grey hepatization or softening, the inflamed portion is infiltrated with pus, which, an incision being made, escapes drop by drop. It is even more friable than before, so that pressure reduces it to a pultaceous mass; or, if the finger be thrust in, a little well of pus is formed. Andral has seen this change in five days, and I have known it to ensue within a week. As to the seat of the inflammation, whether in the vesicular or intervesicular tissue, it is difficult to determine; I should say both were involved. The whole of the inflamed mass seldom undergoes the preceding changes at once; inflammation, however, is usually most advanced in the inferior portion of the lung. Abscess is a very rare result; there is not time for it; the pus is commonly found infiltrated through the lung. When cysts do form, which is not once in hundreds of instances, they are rarely large, and must be carefully distinguished from softened tubercle, dilated bronchi, and those purulent deposits which ensue after blows on the head, surgical operations, and phlebitis. In very few instances, gangrene, which Broussais would refer to cadaveric change, occurs. Laennec

divides it into recent eschar, deliquescent sphacelus, and excavations formed by the softening and discharge of gangrenous portions. In one instance, by this writer, the superficial eschar led to pleurisy; in another, by Cayol, as also in one from Bayle's manuscripts, it formed a soft putrid mass or quagmire; while in a fourth, pleurisy and pneumothorax took place. Three cases are described by Andral, and four by Stokes; while others are scattered through the periodicals. It has been opined by Naumann, whether the contents of a tuberculous sac might not verge on gangrene; and, in effect, Andral relates that a phthisical subject being seized with hemoptysis, the sputa, for some days, were converted into a dirty fetid sanies. In one hundred and fifty cases, by this last writer, ninety ensued in the right side, thirty-eight in the left, seventeen in both; and out of fifty-nine by Chomel, twenty-eight were in the right, fifteen in the left, and sixteen in both. Further, in fifty-nine others collected from Morgagni, Stoll, De Haen, Pinel, and Broussais, thirty-one took place in the right lung, twenty in the left, and eight in both lungs. Inflammation in the apex is more common than Laennec and others have supposed; for, of eighty-eight cases of pneumonia by Andral, it occurred forty-seven times in the base, thirty times in the upper, and in eleven throughout the lung. From an average of two hundred cases, Bouillaud estimates the occurrence of inflammation in the upper, compared to that of the lower lobe, as two to three. This subject is important as relating to the origin of tubercles. In other respects, inflammation may affect the surface or the interior, a lobe or a lobule, and even, if Andral be correct, a portion of a lobule. This, which he styles vesicular pneumonia, and which is sometimes met with after bronchitis, is recognizable by red granulations scattered through the pulmonary tissue. Stokes mentions an instance of inflammation on the pulmonary surface of the pleura, or in what he styles the sub-serous, extending to the interlobular cellular tissue, so that the lobules, isolated by the purulent deposit, hung from their bronchial pedicles like bunches of grapes. Reynaud, also, relates a case in which the hepatized lung being cut into, the bronchi were found distended by ramifications of coagulable lymph extending in an arborescent form, to the very periphery of the organ. These two forms of inflammation, though as regards the parenchyma, intrinsic in one case, extrinsic in the other, have been considered by the former of these writers as similar, if not identical.

The diagnosis of pneumonia, in its different forms, whether alone or complicated, is not attended with any serious difficulties. Dulness on percussion, Piorry affirms, is earlier discoverable than any mere stethoscopic phenomenon; a position in which other observers differ from him. When inflammatory engorgement, however, has once ensued, it is indubitably attended with more or less dulness, which, in the event of solidification, is proportionably increased. Even when pneumonia is partial or central, Piorry is of opinion that strong percussion will detect it; in such cases, however, more especially when local and confined to the base of the lung, or to a single lobule, it is very apt to elude both percussion and auscultation. These modes of exploration, it is proper to observe, should extend to both sides of the chest, and if there be any doubt, it may be well to institute comparison with a healthy thorax. In some, the chest, or one side of it only, is naturally

duller than in others; and, in all cases, we must keep in mind the relative situations of the liver and spleen, as, also, the occasionally tympanitic condition of the stomach, and presence of abdominal tumours. The stroke should be evenly and equably given, with the same number of fingers, and at the same angle. The second and third stages of pneumonia, unless in the event of fluid or gaseous pleuritic effusion, the emptying of an abscess, or the discharge of a gangrenous eschar, produce complete dulness, much as if a piece of flesh, says Avenbrugger, were struck. To this, some have applied the term jecural. If the hand be placed over the diseased side, any vocal resonance that may subsist is transmitted to it, which is not the case in pleuritic effusion. Andral speaks of puerile respiration in the affected side as preceding more advanced stages of inflammation. This, however, merely argues increased function in the yet sound portions of the lung, and is displayed in parts which inflammation may never reach. The sound most pathognomonic of pneumonia in the first stage, is the crepitant or sub-crepitant rattlo, mixed, however, with the common vesicular or respiratory murmur. This, as Dance observes, is only heard when the patient inspires; as for the crepitant rattle, it is conceived to arise from the bursting of small bubbles, the sub-crepitant, from the bursting of larger bubbles, in the minute bronchial tubes. There is no exact line of demarcation between these rattles, which have been diversely compared to the crackling of paper or parchment, the noise produced by rotating hair between the finger and thumb, and, more especially, the crepitus, whence the name, of salt when cast on the fire; and I quite agree with Raciborski, that what appears crepitant to one may be sub-crepitant to another. In fact, inflammation of the parenchyma is hardly, if at all, distinguishable from that of the minute bronchial tubes; and I do not see how one can subsist without inducing more or less of the other. The crepitus is owing to the presence of a small quantity of fluid, and accompanies the inflammation, to a certain point, in its advance, and recedes with its decline. A mucous rattle, however, from the state of the larger bronchi, may be so mixed up with the crepitant, as to obscure, or wholly mask, the latter. The crepitant, or, at least, the sub-crepitant rattle, may be present in inflammation of the smaller bronchi, in simple oedema, or sanguineous infiltration of the lung; while, on the other hand, it may be absent in lobular or circumscribed pneumonia, also in persons debilitated by age and disease, and not having, as Cruveilhier remarks, strength enough to dilate the chest. When inflammation proceeds to the second stage; when red hepatization or solidification of the lung ensues, the crepitant rattle likewise disappears, the vicinity of the hepatized part excepted, wherein it is heard during the inspiration preceding cough. Tubary respiration, it has been affirmed, may sometimes ensue without being preceded by any crepitus; and no sound, save that from bronchial or tubary respiration, propagated from the affected part. Even this, when inflammation pervades the whole lung, the chest, as Stokes observes, ceasing to dilate, is occasionally absent. The indications furnished by auscultation and percussion in the third stage, inasmuch as pus, in place of bloody serum, infiltrates the lung, are much the same as those in the second; there is a mucous rattle with large bubbles, and should cavity or abscess form in connexion with the bronchial tubes,

there will be gurgling or actual pectoriloquy, along with purulent expectoration. When the inflammation begins to decline, first, bronchial respiration, then, crepitant rattle, lastly, the vesicular murmur of health are successively heard. In this case, the crepitant rattle is termed, the crepitant rattle of reeovery. Inflammation, however, may subside before hepatization has had time to ensue. These changes are not synchronous all over the lung: tubary respiration may have yielded, in one place, to the crepitant rattle, when, in an another, the latter is not yet heard. It is the opinion of most pathologists, that the lungs, in red hepatization, never recover their normal condition without undergoing the previous transition; Stokes and Raciborski, however, affirm having observed the change from complete dulness and tubary respiration, to clearness and return of respiratory murmur, without any crepitus of resolution.

The causes of pneumonia are much the same as those of other inflammations, the application of cold and moisture, namely, the frame not being in a condition to withstand their debilitating influence. A certain amount of exposure strengthens the frame, beyond this, it injures; but the degree in which exposure is borne with advantage, varies in different individuals, and in the same individual at different times. The probability of contracting an inflammatory complaint is greatly increased when a man goes out chilly and cold, in place of glowing with a warm surface and vigorous circulation. The ill effects of the former, however, may be more or less counteracted by vigorous muscular effort; but if the expenditure be greater than the supply, the balance of the circulation is deranged, and a morbid reaction, followed by inflammation, is apt to ensue. Even under favourable circumstances there is a term to our capabilities: thus, when a man from a vapour or warm bath rolls in the snow or has cold water dashed over him, the shock only slightly moderates the excitement; but if unduly prolonged or repeated, the animal powers, at length, sink. Pneumonia, for obvious reasons, is most common in winter and spring; and three men contract the disease for one woman. Previous attacks, also, as in the case of other inflammations, predispose to subsequent ones; and authors abound with instances of the frequent recurrence of the disease in the same individual. Engine and firemen, bakers, soldiers, coachmen, day labourers, and others, are very liable. Debility, especially in early or advanced age, seems a predisposing cause. Typhus and the febrile exanthemata are apt to be complicated with pneumonia, often latent. The inhalation of corrosive gases, over-exertion in speaking, abuse of wind instruments, and the bites of poisonous reptiles, are considered productive of pneumonia. European and American writers dwell on its occasional prevalence in an epidemic form. Some consider typhoid or asthenic pneumonia, as it has been termed, contagious; however it may be with fever, we cannot well concede this property to the inflammation. Yet, murrains or epizooties, in which pneumonia is said to be an ingredient, are capable of propagating themselves. The aged inmates of certain French hospitals, as the Salpêtrière, though the temperature be regulated by stoves, are carried off in great numbers in winter, by the disease under consideration. Of a given amount, however, subjected to the same exposure, some will be seized with pneumonia, some with other diseases. Inflammation of the lungs is very common

and destructive among children and infants, vast numbers of whom are yearly cut off and destroyed, in very many cases, although dyspnœa and the usual physical signs be present, evincing neither cough nor expectoration.

The earlier an individual who labours under pneumonia is submitted to treatment, the sooner, with adequate activity, is the probability of recovery. Blood-letting, and the amount to be taken away, will depend, not so much on the date of the disease, as on the symptoms, the dyspnœa more especially. When the complaint occurs in menstruating women, it is to be treated, in all respects, as in other cases. After ascertaining the existence and history of the disease, twelve, sixteen, or twenty ounces of blood are to be taken away from a large orifice; immediately after which, taking care to avoid exposure, I would place from two to four dozen leeches on the affected part. If leeches be scarce, or bad, I would cup. At the same time, I would order six grains of tartrate of antimony in eight or ten ounces of peppermint-water, giving the patient a large spoonful every hour or half hour; and continue it, with the view of relieving cough, inducing nausea, and keeping down reaction, during every waking interval. The patient, at the same time, is to be allowed a liberal supply of diluent drinks, gum and rice water, toast tea, and the like, all very slightly heated. He should be visited at intervals of from six to eight or ten hours after the first bleeding, after which, it will usually be found that the pulse has risen, and that dyspnœa has increased. Here, it will generally be expedient to withdraw blood afresh, to the same amount, or nearly, as at first. Let us bleed in the semi-erect posture, but considering the organ affected and its condition, deliquium is hardly desirable. This can be easily prevented on its approach, by slackening the bandage for a while, and making the patient lie down, again renewing the emission, till we have obtained the desired amount. At the next visit, the operation, if needs be, should be unhesitatingly repeated, with, perhaps, the further application of leeches to the chest. Purging is not expedient, but the bowels must not be suffered to remain costive. Now, if ever, is the time to resort to mercury or counter-irritation, unless the dyspnœa, fever, and uneasiness should have subsided. If, however, these continue, while percussion and auscultation report unfavourably, four grains of calomel and a grain of opium, as recommended by Dr. Hamilton, may be given every four or five hours; the stronger mercurial ointment, at the same time, being rubbed inside the thigh, and a large blister over the affected part, dressed with the same. I have, in repeated instances, and in the most violent forms of the disease, when further depletion was inexpedient, found resolution and complete remission of the symptoms to ensue; once the mercurial influence had extended to the gums. In other respects, I would reiterate counter-irritation, till the cough and uneasiness, if any, had disappeared. In old and broken-down subjects, not to speak of febrile complications, pneumonia may assume an asthenic aspect, so as to interdict much, if any depletion. Here, stimuli, wine, bark, and ammonia may be necessary; and I have had complicated cases, in which the state of the symptoms obliged me, in order to save the patient's life, to bleed largely, while immediately after, perhaps, I had to allow liberal supplies of wine, soup, and panada. I have only to

observe, that the treatment of Laennec by tartar emetic, borrowed from Rasori and Tommasini, by them from the *Elementa Medicinæ* of Brown, and termed the method of counter-stimulation, is now resorted to by no practitioner alone, and never to the extent which Rasori advocated. So far as he could see, Andral observes, large doses of antimony were not attended with any advantage; nor did he consider this substance more efficient when tolerated by the digestive organs, than when it caused nausea, vomiting, or diarrhœa. The views of Rasori, indeed, are, in many respects, erroneous, and hardly extend beyond the precincts of Italy.

The most decided advocate of copious blood-letting, at the present day in France, is Bouillaud. Louis, indeed, by his observations, has tended to throw the practice into some discredit; they hardly apply, however, to the graduated systematic method which the preceding writer advocates. He alleges that the majority of pneumonic cases in the first stage, are arrested on the third day, and the disease, in a manner, strangled. Sydenham withdrew forty ounces, but Bouillaud has abstracted four, and even five pounds. Detractions so copious, with the preceding cautions, do not appear to be in any wise prejudicial; nor are they, immediately or remotely, so weakening as undecided paltering with the disease. It has been averred, says Jules Pelletan, that the treatment in question was unduly debilitating, and that it entailed protracted convalescence; but so far from this prejudiced statement being correct, patients support it well and recover quickly. Very many fewer, observes Lecouteulx, perish when submitted to active blood-letting, than by any other method, that by tartar-emetic inclusive; while convalescence is much more rapid. Pneumonia of the severest stamp, observes Raciborski, not to advert to the suffrages of Andral and Chomel, was, perhaps, never before removed in three, four, five, or six days; but then, he adds, the detractions were not less judiciously than perseveringly employed. Out of one hundred and two individuals treated by Bouillaud, there were twelve who died. The first of these, it is right to mention, was one who had been three weeks ill, and reduced to a skeleton when brought to the hospital, so that bleeding was out of the question; the second, after being bled twice, refused to submit again to the operation; the third died on the day of admission, without treatment, as did the fourth, who was only seen in the dissecting-room; the fifth perished thirty-six hours after admission, the sixth had acute, supervening on chronic pneumonia, with caries of the ribs; the seventh was brought in delirious and prostrate after eight days' illness; an eighth had double pneumonia with diarrhœa, and was admitted on the eighth day; and four others presented ordinary severe forms of the disease. Each patient, on the average, was bled four times, cupped twice, and had forty leeches applied; blisters were resorted to in some instances, and the treatment did not extend beyond ten days. As to general attentions, patients ought to be constantly clothed in flannel. The night-chair in hospitals should be kept at the bedside. In cases of lingering irritation and unresolved solidification, we may alternate counter-irritation, leeches, and mild courses of mercury, with warm baths and stimuli. Gentian, quassia, columbo, or senega infusion, with or without the carbonate of ammonia, is often expedient; also, quinine, and, when it can be borne, change of air. During

convalescence the surface must be guarded with plies of flannel, and perhaps, chamois over all; when the risk of relapse has subsided, excessive muffling may be discontinued. A permanent drain, in the shape of a seton or otherwise, may be expedient, should tuberculous supervention be apprehended. Gerdy recommends a prone posture, avoiding, at all events, the affected side.

V—PERTUSSIS, HOOPING-COUGH.

HOOPING-COUGH is a frequent disease, most persons labouring under it at some period of their lives, during childhood particularly. It is by some thought, but without any adequate proof, to be of modern origin. Though whooping-cough sometimes ensue at once, it is generally preceded by a catarrhal period of some duration; I have known this, though rarely, to extend a fortnight or three weeks. There is, in the first instance, considerable cough, sneezing, and coryza, with more or less general disturbance, sometimes inflammation of the bronchial passages. I never saw the complaint fatal at this early period, though such has been averred by Dugès. The hoop is of a very peculiar character, and has, not inaptly, been compared to the braying of an ass. The patient, in a series of violent expirations, coughs till the chest, so far as practicable, becomes void of air; expiratory efforts then cease from the sheer impossibility of continuing them; the spasm, after a second or two, is resolved, and the breath is drawn in with a prolonged, almost convulsive sob or whoop. There may be one, or a succession of paroxysms; and I have seen children suffer so much, while orthopnoea, and livor of the countenance became so extreme, as, more than once, to lead me to apprehend instant suffocation. I knew a child only three weeks old to contract this disease, and to escape with extreme difficulty. It was occasionally plunged into a state, with blue fingers, lips, and face, bordering on asphyxia, most painful to contemplate; and one instance occurred to me of an infant perishing in this way. Little derangement, it has been observed, can be detected on applying the ear or stethoscope to the chest. The hoop, in the first instance, is attended with mucous, subsequently, purulent or mucopurulent expectoration. The presence of this in the lungs, and instinctive desire to get rid of it, seems, in a measure, the proximate cause of the hoop or cough. In ordinary bronchial affections, children rarely expectorate, whereas in pertussis, they do so freely; and the discharge, even when accompanied with vomiting or epistaxis, is productive of such relief, that the little patient is ready to play, eat, and run about the moment after. Delicate children, however, those who have the disease in a severe form, or attended with bronchial inflammation, remain in a weak languid state for some time after. Not merely the contents of the stomach, but those of the rectum and bladder, owing to violent action of the diaphragm, are occasionally expelled. Hemoptysis is by no means so common as epistaxis. I have seen blood gush from the mouth and nostrils, even of anemic subjects; while, from this cause, and irritability of the stomach, food not lying, great exhaustion was induced. The eyes, become tearful, and often suffused with blood.

Children are conscious of approaching paroxysms, and lay hold of any person or thing near them for support. Hooping-cough is rarely contracted a second time; but I observed an example of its recurrence, after nine months free interval, in a boy. It is a peculiarity of the disease, however, to reappear when nearly extinct, but the instance alluded to, hardly came under this head.

Some regard hooping-cough as a spasmodic affection; others look upon it as purely inflammatory. Certain French pathologists affect to consider it a mere variety of epidemic catarrh, an opinion, however, which is certainly erroneous. Among others, Marcus, in his *Traité de la Coqueluche ou bronchite epidemique*, gives cases, two of which I shall abstract, which he esteems conclusive. The subject of the first, was a child of nine, who, being exposed to cold during convalescence, relapsed and died after intense fever, accompanied by all the signs of violent hooping-cough. The bronchial lining was excessively inflamed, and the tubes so full of pus, that it was difficult to conceive how air could penetrate. In the other, the larynx and trachea contained a muco-puriform fluid, while the bronchi were of a deep red hue. The complaint is a specific one—a specific bronchitis, if we please, but one in which the inflammation, if any, commonly very slight, is propagated by intercourse with affected persons. Common bronchitis in the acute form, does not last so long as hooping-cough, and may be incurred any number of times; in other respects, chronic bronchitis is not a disease of childhood. In some cases, inflammation extends to the pulmonary parenchyma and pleura; the membranes of the brain, with local turgor and congestion, also the mucous lining of the intestinal canal. Indeed, I have seen children placed in jeopardy by supervening pneumonia—principally, I may say exclusively, met with in the pertussis of winter and spring. A fine child of sixteen months, with dyspnœa between the hoops, occasional rising and falling of the alæ of the nostrils, and dulness with absent respiration, indicating solidification, in the inferior portion of the right lung, perished within the first fortnight of the disease, convulsions, perhaps from teething, ensuing a few hours before the close. In one or two instances, I have witnessed the supervention of phthisis. Pertussis may be combined with some diseases, as measles or ague, and superseded by others, as variola and vaccinea; more commonly, however, it stands its ground. The peculiar hoop prevents it from being confounded with any other malady; but we cannot be certain during the preliminary catarrh. I have known old persons to have this complaint very severely. Young persons struggle through it in a wonderful manner; cases, which, to the inexperienced, seem indicative of danger, are often attended with little or none. It is hard to say whether the epidemics adverted to by authors were those of hooping-cough or not. Thus, an outbreak of what was termed *coqueluche* ensued in Paris, in the sixteenth century, which, very probably, was what we now acknowledge by the term influenza. An epidemic occurred in 1580, in Rome, in which nine thousand children are said to have perished. According to Rosenstein, forty-four thousand were cut off in the course of fifteen years, in Sweden. Among the more illustrious victims to hooping-cough, was Anne, consort to Philip II. of Spain.

Hooping-cough, says Marcus, has been a disgrace to medicine, inas-

much as it continues long, and yields to no remedial means. This writer condemns the practice of dividing it into two stages, the catarrhal and convulsive, and of doing nothing in the first. So far as inflammatory complications are concerned, no time should be lost in arresting them; in other respects, the multitude of remedies alike display the innocuity and obstinacy of the complaint. I once attended five children, from six months to eight years old, all in one room, two labouring under bronchial complications so severe as to justify the utmost anxiety as to the event. When they happened to hoop together, the spectacle was sufficiently distressing. Attacks during spring and winter, what from the greater frequency and severity of inflammatory lesions and liability to relapse, are the worst. The local application of leeches, and internal exhibition of tartrate of antimony, were the measures which I found most useful: to venesection I rarely if ever resorted. Indeed, nauseating and emetic remedies, so far as they can be borne, are those commonly productive of most relief; and by lessening local inflammation and irritation, and allaying fever, allow the disease to run its natural course. The complaint, in many cases, from its excessive duration, seems, as it were, to engraft itself on the constitution, and is with great difficulty got rid of. Ipecacuanha, squills, or emetic-tartar in nauseating doses, calomel and rhubarb, to regulate the bowels, are what I commonly employ. Blisters, whether early or late in the disease, are more teasing than useful. I have induced pustulation by means of tartar-emetic ointment, with very little advantage. This remedy, indeed, should be employed with caution, since, in three of Guersent's cases, ulceration, with caries of the extremities of the sternum and costal cartilages, and death, were the results. Should the head be threatened, the bowels must be strictly attended to, and leeches applied to the mastoid processes. If, as rarely happens, the bowels be implicated, they must be treated according to the nature of the complication. When the first or febrile period has passed away, we may allow moderate portions of nourishing food, chicken-broth, beef-tea, animal fibre, according to age and inclination, and even wine. Milk, in some shape, and cooling fruit, are admissible from the first. Repletion, however, in every case, is injurious. Young children, during the fit, should be raised from their cradles, and supported leaning a little forward, till the paroxysm subside. When the latter is very long-drawn, it is proper to clap the patient's back, to sprinkle the face with water, and to allow free access of air. For these and other reasons, young subjects ought never to be left alone. Should convulsions supervene, or threaten to do so, the warm bath, with small doses of ammonia and laudanum, will be expedient. Now, if at all, we may try musk, assafoetida, garlic, prussic acid, or belladonna. They all have suffrages in their favour; but I have tried them, and am bound to say, I never found them, with any certainty, to prevent or allay the fits, to shorten the duration of the disease. It may, however, be occasionally advisable when bronchial irritation is considerable, the febrile period being over, and when the patient hardly rests or sleeps, to allow a little of the syrup of poppies or tincture of morphia. We must not forget, however, that opium tends to diminish the facility of expectoration, to lessen the appetite, and render the bowels costive. In mild weather, and even during the fine days of winter, it is better for the

child to have free access to the open air. Once, indeed, the disease has become chronic, this is greatly preferable (paying due attention to clothing) to confinement in over-heated, ill-ventilated apartments. Here, it is proper to regulate the alvine discharges by gentle aperients, and to promote the functions of the skin by occasional warm baths, and flannel worn next the surface. Should the kinks prove very severe, an emetic occasionally, say of the sulphate of zinc, will clear out the bronchial tubes, and promote the sanguification of the blood. When the disease is on the decline, change of air to a warmer climate, if it be practicable, is desirable; at all events, let there be some change, were it only to another room in the same house. I have known children who left town for the sea-shore, never to hoop once, perhaps, during a whole fortnight; and yet, recommence immediately on their return. Blache says that kinks have ceased, by simply bringing children from one quarter of Paris to another. In fact, those with copious purulent expectoration and immitigable cough, emaciated, and apparently dying, have received prompt and permanent relief, by merely changing their abode. As for the prophylaxis, the only thing is *fuga contagii*; though, even of that, when the disease is mild and of summer prevalence, I question the propriety. In the case of non-vaccinated boys, I tried, as I mentioned before, to supersede the disease by the insertion of cow-pox matter over the sternum.

VI—ASTHMA.

ONE of the greatest modern improvements, with regard to asthma, though not universally recognized, is its diagnosis from mere alterations in the organs of respiration and circulation. Chronic dyspnœa, in every form, whether from diseased lungs, heart, or great vessels, had been confounded with it; hence frequent misnomers, with regard to angina pectoris, phthisis, aneurism, and other diseases. The division into nervous, spasmodic, and humoral, still betrays prevalent misconception. Asthma sometimes comes on without precursory symptoms; at others, it is preceded by nausea, flatulence, vomiting, headache, and despondency. Even in the intervals, there is a peculiar expression, which, with the swollen countenance, tumid lips, injected eyes, shoulders brought forward, and laboured respiration, betrays to the experienced observer, the nature of the case. Towards midnight, or two or three in the morning, when every thing is quiet, dark, and still, the patient is probably roused, perhaps out of some frightful dream, or a condition approximating to night-mare, by extreme difficulty of breathing, accompanied by a sense of suffocation, with constriction round the chest. He gasps for breath; and, thrusting all impediments aside, instantly assumes the erect posture, which, if it were not attained, he feels as if he should be strangled, *κίνδυνος πνιγῆναι*, as Aretæus has it. In general, he rushes to the nearest window to gratify his instinct for the fresh element; and, it is singular, even in the case of delicate persons, that exposure for hours seems rarely to entail injury. The urine at the beginning is pale and copious; subsequently it becomes loaded with more or less deposit. At this time patients, however

costive, commonly have a loose stool. The skin, at first dry and hard, is bedewed with a copious sweat; while the pulse is small, contracted, and perhaps, irregular. If a stethoscope be applied, the respiratory murmur is more or less obscure or slightly sibilant. The patient remains for some hours, more or less, according to the inveteracy of the disease, in the condition above described. There is no expectoration at first, however violent the cough, but, by degrees, orthopnœa declines, the action of the respiratory muscles is moderated, mucous sputa, discharged with facility, entail much relief, while the sufferer is able to lie down and rest. The expectoration, in some cases, even in the intervals, is exceedingly copious; while, in others, it is sparse and limited. In a few instances, it is tinged with blood; and, in plethoric persons, epistaxis may ensue. Sometimes there is but one attack, and the patient remains exempt for a considerable period; at others, the disease may ensue for many consecutive nights. Floyer saw a person in whom it lasted seven weeks; and I knew a lady in whom it continued three. In other cases, as Heberden observes, it reappears at regular intervals of a month or a year; but the returns are commonly uncertain, and, as it were, accidental. In other respects, this *morbus maxime terribilis*, as Willis terms it, may extend to very advanced age.

As few subjects die with asthma till worn out by the advance of years, concomitant affections of the heart, lungs, or other organs, so post-mortem examinations have not been frequent. Instances, however, have been numerous enough to determine, that, as during life, the closest interrogation, by means of physical and rational signs, was insufficient to detect serious organic change, so the minutest examinations were equally inadequate to discover such after death. Autopsies have been recorded by Hildanus, Morgagni, and Riverius, as well as more recent writers; but they are generally of too negative a character to build upon. Baillie describes a case bearing a greater resemblance to pulmonary emphysema than any thing else; the cells, he says, were full of air, and numerous white vesicles appeared on the surface. Bree mentions a mason, the cells and bronchi of whose lungs were replete with serum. Broussais refers asthma to hypertrophy of the heart, and Rostan looks upon it as the constant result of pulmonary or cardiac lesion. Georget, however, ascribes it to an affection of the spinal marrow or brain, and cites cadaveric researches of Delens in confirmation. The effects of a section of the eighth pair of nerves would infer nervous lesion; but conclusions from such experiments must be very uncertain. Should asthma, indeed, complicate disease of the centres of circulation, or conversely, reciprocal aggravation will doubtless result. As for spasm of the bronchial muscular structure, described by Reissessein, the hypothesis is uncertain as the structure in question. Laennec's curious experiment of inspiring gently, so as to take the spasm, as he phrases it, by surprise, is no ways confirmatory. In fine, there is not a shadow of proof, either that air does not permeate the minute bronchi, or reach the terminal cells. If I might venture on an hypothesis, I would signalize asthma, apart from structural change in the organs of circulation and respiration, as neuralgia of the lungs, in fine, pulmonary neuralgia; just as angina pectoris, so long misunderstood, is neuralgia of the heart. This view would resolve many difficulties connected

with the pathology of asthma, at once simplify the phenomena of the disease, and include the latter in the widely-extended family of cognate maladies. The disordered respiration, might naturally enough be referred to instinctive desire to get rid of the intolerable pain and oppression; just as tumultuous and irregular motions in the heart ensue in angina pectoris. If the bronchial tubes remain patent, and that they do so, the sound of expiration, so obvious on applying the stethoscope, amply proves—and, further, if the powerful inspiratory muscles retain their energy, and that they do so, any one who will look at an individual labouring under asthma, may readily convince himself, the inference seems clear, that the disease is a neuropathy, a form of nervous suffering—in fine, a neuralgia.

The exciting causes of asthma are sufficiently numerous. Sex appears to have considerable influence, as by much the greater majority of subjects are men. To what we are to ascribe this, unless to the more exposed occupations, the excesses, and violent passions of the stronger sex, it would be difficult to say. As for Ryan's notion of mere cold, though an exciting cause, occasioning the disease, it is erroneous; nor do we, in fact, commonly meet with it among the working classes. Age, also, has its influence: asthma, unless from malformation, does not occur in early life, neither does it ensue, for the first time, in very advanced age. I met with it in the former case, twice. I do not esteem asthma, unless in so far as malformation of the chest is so, hereditary; nor are we able to associate the disease with exclusive habits of indolence and repletion. Smoking has been esteemed a cause; but, contrary to the opinion of Bree, it is rather remedial than otherwise. I have not witnessed many cases of the disease among flax-dressers, smiths, cutlers, engine-men, bakers, cotton-spinners, masons and others, who respire amid vegetable or mineral dust. According to Henderson, opium-eaters in the East contract an asthmatic affection, of which, when deprived of the poisonous drug, they actually die. I have observed something similar in the case of dram-drinkers and tobacco-chewers, when their wonted destructive excitement was withheld. Asthma is closely simulated by hysteria: I have seen the resemblance, while it lasted, perfect. Mental excitement not only re-awakens, but actually induces it. A healthy woman of eighty, says Delens, on being greatly annoyed, was seized twelve days after, in the middle of the night, with asthma of an hour's duration. The fits at first subsided without leaving any organic trace; but they gradually became long, eventually, almost constant, till the patient in six months died anasarcaous. A young officer of feeling and talent, relates Ferrus, finding Paris, in 1814, beset with foreign soldiers, was so painfully impressed, as immediately to experience considerable dyspnoea, which, for fifteen nights recurred in the form of asthma. Corvisart could discover no certain evidence of pulmonary lesion; and though renewed annoyances and intermittent fever recalled the disease, the patient eventually regained his health. Powdered ipecacuanha has been known to induce the complaint, of which a curious instance is related by Scott, in the Edinburgh Medical Commentaries. I have known flowers, retained all night in the bedroom, to entail similar results. Bree has seen a paroxysm brought on by smelling over a browning vat; and Parry, not to mention others, has

met with several instances from the effluvia of old and new hay, sealing-wax, or ipecacuanha. In fact, when the disease is deep-rooted, a slight cause will suffice to reproduce it. The influence of locality is considerable; some experiencing an attack when they repair to a given spot, others when they leave it. In general, a heavy, turbid atmosphere, as that of London and other large towns, is preferred. A young lady is mentioned by Chapman, who had an attack whenever she left an apartment in a medium story in Paris, and from which she was freed by returning again. Laennec tells us of a gentleman who was affected with dyspnœa, approaching to fainting, every time he rode from a city in a vast plain. On turning back his indisposition ceased; but several trials were made before the morbid connexion was ascertained. He also speaks of a count who always contracted asthma when his bedroom door was shut, or when the lamp which burned at night went out. The incidence of the disease during particular winds, as the east, is adverted to by different writers. Boerhaave, Andral, and Guersent, relate instances of asthma following the repercussion of eruptions, natural or artificial discharges. Medicus details a case in which the suppression of a violent itch caused such a convulsive outbreak of dyspnœa, that the patient fell senseless. A gentleman, says Chapman, having repelled a wide-spread tetter, from the inside of the thigh, was seized with the most afflicting anhelation, which continued a year, till the eruption returned. Another having cured a similar affection of the scrotum, began to sneeze, with little interruption day and night, for months, followed by a very oppressed state of the lungs, for which no remedy could be found, till the original affection replaced itself. Chapman also mentions a young lady in whom a scaly eruption on the forearm, that had migrated from the neck, having been removed, excessive dyspnœa, shortly after fatal, from that moment supervened.

The diagnosis of asthma, what from its occasional combination with disease of the heart, lungs, and great vessels, what from the dyspnœa which accompanies the latter, when separately existing, may be attended with some difficulty. In asthma, however, the exacerbations are much more decided, and the intervals freer from indisposition, while its course is commonly more protracted. Withering esteems spasmodic asthma a rare disease, and conceives that it has often been confounded with anasarca of the lungs. I have seen persons far advanced in phthisis, who conceived they only laboured under asthma. Writers speak of dry, humid, nervous, and spasmodic asthma; but, so far as the idiopathic disease is concerned, the affection throughout is one and the same. The absence of fever in this complaint has been noticed by the earliest writers. As for the crowing respiration, termed Miller's asthma, also thymic asthma, by Kopp and Hirsch, false croup by Guersent, angina stridula by Bretonneau, and laryngismus stridulus by Good, it seems entirely to arise from a temporary spasm of the glottis, produced by causes of which we are, I fear, wholly ignorant. There is excessive dyspnœa: the infant gasps for breath, and, at length the spasm being resolved, air enters the chest, with a crowing sound, like what ensues in croup, a disease with which it was long and still is, by some confounded. Of this affection, occasionally fatal, I witnessed a well-marked instance in a diminutive, delicate child. It has no connexion with fever or inflammation; comes on

and disappears suddenly, and has been ascribed to hypertrophy of the thymus gland, by Ley to pressure from enlarged cervical or bronchial glands, on one or both recurrent nerves; and, by Kerr and Marsh, to difficult dentition. Wolf talks about its being epidemic: Jörg, on the other hand, never saw it, and does not believe that spasm of the glottis could induce croupy voice; though, in fact, such may occur from a drop of fluid gaining admission into the larynx. Wendt speaks of a child at the breast, the mother having been treated for inflammation in the throat, who, for the second time, suddenly contracted the disease, and died. As we are alike unacquainted with the predisposing and exciting causes, and as the affection commonly subsides before we can resort to a remedy, treatment, besides regulating the quantity and quality of the ingesta, attending to the bowels, scoring the gums when needful, and, perhaps, changing the nurse, seems hardly expedient. Kopp and Hirsch, indeed, who look upon Miller's asthma and thymic asthma as different diseases, recommend the usual routine of antispasmodics, laurel water, musk, assafœtida, and the chloride of zinc. In other respects, a strict watch should be kept during sleep, lest the infant suffocate; while the warm bath, and a few drops of ammonia, may be safely resorted to, once the imminence of the paroxysm is over.

Asthma is rarely removed; but I have met with several cases in which the disease, both in frequency and severity, was so far mitigated, as to approximate to that condition. The more inveterate the disorder, and advanced in years the subject, the greater the difficulty in remedying it. If complicated with disease of the air passages, or with structural derangement in the heart or great vessels, therapeutic difficulties proportionably increase. The mitigation of asthma must be mainly sought for by realizing general indications with regard to diet and regimen. As for attentions during the paroxysm, nature herself has dictated them. In other respects, some prefer the dark, others the light, while many are indifferent. As to drinks, there is the same variety; strong coffee, for example, alleviates the complaint in some, aggravates it in others. Indeed, the patient's idiosyncrasies, with respect to place, time, circumstance, heat, cold, moisture, food, air, and exercise, must be carefully attended to. The first thing when consulted by a person presumed to labour under asthma, is to determine its actual existence; next, its freedom from, or combination with, pulmonary or cardiac disease; thirdly, the general health and condition of the patient; lastly, his habits, and the remedies that may have been made use of. The complication, if there be one, so far as possible, is to be got rid of; and if, as commonly happens, there be any thing wrong in the general health, or faulty in the regimen, we should endeavour to improve the one, and regulate the other. For these reasons, we must dictate the hours of rising and of going to rest, the nature and quantity of the food, which should be sparing, and the amount of intellectual and bodily exertion. The bowels must be attended to, the surface duly protected, and equanimity enjoined. Whatever improves the general health, bids fair to mitigate the complaint; hence, undue excitement, excess in any shape, late hours, and night exposure, must be scrupulously avoided. As regards the disease itself, I have found no remedy so efficient as an active emetic, administered a little before the expected paroxysm: it arrests the invasion, and, perhaps, sets it aside for a

longer or shorter period. In this way, I put a stop to asthma, with a long respite, in a lady whom it had previously assailed every night for three weeks. The case, which was without bronchial or cardiac complication, had been of long standing, and had undergone a great variety of treatment in England and Scotland; while the livid countenance, tumid lip, and interrupted breathing, even in the intervals, betrayed the severity of the complaint. She had several shorter attacks afterwards, which the emetic always mitigated or removed. An opiate mixture, with carbonate of ammonia, was also tried; but any alleviation it afforded, did not compensate for the consequent stupor, costiveness, and loss of appetite. I attended closely to the general health, and was every day getting the better of the malady, when circumstances caused the patient's removal to London. In another inveterate case, with habitual dyspnœa, narrow chest, pallid and tumid countenance, I found emetics, composed of ipecacuanha and the tartrate of antimony, followed by the shower-bath, of marked utility; so much so, as, for very many months, to procure immunity from the disease. This patient, whom I afterwards lost sight of, was addicted to excessive smoking, with literary occupation, standing over his desk, far protracted through the night; both of which I advised him to bring within bounds, and to add walking exercise in the open air. In a third, again—a teacher and a clergyman, there were excessive anhelation, livid countenance, and occasional hemoptysis. Here, emetics and the shower-bath, with general diatetic directions, apparently sufficed to cure. The general amelioration was prodigious; the dyspnœa disappeared; the colour became good; and the patient, after gratefully acknowledging his obligations, repaired to New South Wales, where he continues to enjoy good health. I could also cite other cases, in which the relief was more or less considerable. Next to emetics, stramonium and tobacco, freely smoked, seem to induce relief. I have tried the lobelia, but do not entertain a favourable opinion of it. Other emetic substances, the squill, for example, also answer; the bulb, indeed, has been praised from an early period; and is adverted to with encomium, by Avicenna in his second book. The remedies, however, proposed in asthma, have been innumerable; all the narcotics and antispasmodics, bark, counter-irritation, the oxide of zinc, digitalis, the inspiration of oxygen or of diluted chlorine, hydrocyanic acid, galvanism, acupuncture over the chest, and ligatures on the lower extremities, have been alternately employed and discarded.

VII—PHTHISIS, CONSUMPTION.

TUBERCULOUS diseases, whether as regards their frequency or destructiveness, are eminently deserving of consideration. Their peculiar, and, in some respects, obscure pathology, with the youth of the victims, present topics for interesting and mournful inquiry. The term consumption, as Young justly observes, applies not so much to the gradual destruction of the lungs, as to the correlative wearing away and decline of the frame. As for the term *phthisis*, it is commonly referred to *φθίω*, to corrupt, or *φθίνω*, to consume. This most insidious and destructive

disease sometimes commences so abruptly and pursues its course so speedily, as well to deserve the designation of acute; at others, years may lapse before its tedious progress comes to a close. Unless warned by previous losses, consumption may make a rapid progress before it alarms the friends of the patient. Every kind of self-delusion is practised by the parties: it is a cold which will soon be shaken off, and the deception is cherished in hopes of a change. Catarrhal affections, influenza, inflammatory attacks, fevers, and febrile eruptive disorders, are frequent precursors. The breathing, particularly after a surprise, or on ascending hills or stairs, is more easily quickened than before. As the disease advances, the dyspnoea becomes more perceptible, and the patient often cannot read aloud, or sustain conversation, without panting and perhaps palpitation. The colour mounts to the cheeks, and the circulation is easily excited. In some, the passions are moved under circumstances inoperative in health; and joy and grief are exhibited under disproportionate circumstances. The skin ceases to display its full, soft, brilliant aspect, and, no longer bedewed with its natural moisture, grows hard and dry. The appetite becomes capricious or uncertain, and things that were formerly enjoyed, create repugnance or disgust. There is a sense of weariness, and efforts the most moderate, are attended with fatigue. For some time, indisposition is connected with no particular time of the day, but, by degrees, the patient feels himself worse in the afternoon; the pulse becomes quick and hard; the skin grows hot, and the eyes are lighted up with unusual excitement. This state may continue some hours, but is resolved at the end of that time or sooner, should the patient sleep, by the breaking out of perspiration about the head, neck, and chest. On awaking, it is with feelings very different from the sensations of health; and thus does daily hectic go on, becoming more and more aggravated, until the close of the disease. Indeed, as the complaint advances, the remissions, so conspicuous at first, become less obvious, though the evening exacerbations subsist as before. It is then that the skin glows with unnatural warmth, that the patient writhes as if in a furnace, and that the pulse rises to one hundred and twenty, thirty, and even forty; while the cheeks are tinged with a vivid hue, simulating or surpassing that of health. The cough, dry and insignificant for a time, occasions little inconvenience, and is hardly adverted to; by degrees, however, it becomes inveterate, and is easily roused, even by speaking or eating, into great violence, sometimes attended with vomiting. At first, the discharge is slight and pearly, afterwards diversified with sanguinolent, eventually, copious, purulent striae. The voice rarely retains its fulness and sonoreity, but becomes hollow, tremulous, and uncertain. Pain is seldom so much complained of, as a tightness and constriction across the chest, leading to sighs and uneasy gestures. When free expectoration, however, is established, this is diminished. The emaciation, in the first instance inconsiderable, in process of time, becomes great, in many cases, extreme; a very few, however, escape this. Individuals seem to grow, and young persons really do grow taller; the hands and feet become thin and lank, and the finger joints apparently swollen at the extremities; while the nails, losing their due support, curve over, and become hooked. The features, with the nose and chin, grow pale and pointed, and the teeth transparent; the eyes sink in

the sockets; in women, the breasts almost disappear; and, in both sexes, the ribs and articulations become gaunt and prominent. The tongue, moist and clean though red, for the most part, is occasionally hard and dry. About this time, the catamenia disappear; but, in a few instances, continue nearly to the close. In early stages, the generative faculty still subsists; and I have known the man or the woman to enter the marriage state, to have one or more children, and then to die. The gratification of the sexual impulse in men seems to hasten decay, while childbearing commonly retards it in women. Instances are fresh in my memory of those who had been expectorating blood or pus, marrying and bearing a succession of children; but, so soon as the reproductive aptitude ceased, the destroyer fell upon, and bore them away. In these cases, the children contract more or less proneness, perchance a slight one, to tubercular disease. Among other evils, diarrhœa complicates the advanced stages of phthisis, so that with copious dejections from stomach, lungs, skin, and bowels, we marvel how the sufferer struggles on. Aphthæ of the tongue and mouth now make their appearance, and the bones of the back and hips become so prominent, that we fear they shall penetrate—a rare occurrence, through the skin. The pulse becomes soft, small, and very frequent; the urine foul, sparing, and high-coloured; and the individual so weak, with panting and dyspnœa, that he can hardly rise without fainting. The appetite rarely fails till within a few days of the close. Oedema, often painful, of the lower extremities, now frequently ensues. The mind generally remains unclouded to the last; but, in a few instances, though easily recalled, it wanders to other scenes and distant recollections. A little peevishness may sometimes be witnessed, but many display a wonderful sweetness and constancy to the last. Few die in pain: I have seen many slumber off, as if about to rest on a mother's breast, in place of the cold bosom of earth. In a very very few, expectoration and fever disappear, the sweat dries up, appetite, flesh, and strength return, and health is restored.

Hemoptysis is a frequent precursor, and may endure for the whole term of phthisis. It was observable in two-thirds of the cases of Louis; in three women for two men, and rather after than before forty. Andral, however, describes it as most frequent in the opposite sex. It is occasionally vicarious of the menstrual discharge; and I can recollect several instances of its cessation, the menses returning, without the after occurrence of tuberculous disease. Nor, indeed, is it so necessarily followed by this disastrous result as is commonly supposed. I have several individuals under my observation, who had hemoptysis some years since, and in whom the absence of all phthisical signs and symptoms infers integrity of the lungs. Thus, Andral mentions a man in whom hemoptysis was frequent; and observes that in him, as in some others, it was attended with no more inconvenience than simple epistaxis. The too frequent concomitance of tubercular affections, however, with this discharge, is, unhappily, beyond question. The blood may be high-coloured and frothy, or dark and clotted. It may subsist alone for years, or phthisis may immediately supervene. Carswell ascribes it to venous obstruction entailed by the compression exercised by tubercles, but the disease often runs its whole course without the occurrence. Hemoptysis is more common at the com-

mencement than during the course and decline of phthisis, the slight sanguinolent striæ, which tinge the sputa, hardly deserving the name. The discharge may be trifling, or so considerable as to soil a handkerchief in a few minutes. I remember one poor fellow, and Townsend relates a similar case, from whose lungs it seemed to issue in basonsful, and who died in the act. Puchelt details two fatal instances; others are furnished by Laennec and Heberden; while Lorinser regards it as one of the ways in which life, in the second stage of phthisis, is brought to a close. In such instances, in place of ordinary exhalation, a vessel is doubtless eroded. Carswell, indeed, mentions a child who died in a few minutes, from a communication opened through a tuberculous gland, between the trachea and pulmonary artery. Blood has been found occupying large tuberculous cavities, when, in life, there had been little discharge. Hemorrhage from the nose, gums, or fauces, will not, with any attention, be confounded with hemoptysis. Some stress is laid, by Graves, on the difference between arterial and venous hemorrhage; but when from the lungs, were it possible to discriminate, the distinction seems of little importance. Andral mentions one man who spat blood for thirty years, dying phthisical at last; and another, who, after spitting blood from his twentieth to his eightieth year, died with cretacious tubercles, surrounded by indurated pulmonary tissue, of another disease. This person's children perished of phthisis, with previous hemoptysis, at an early age. Sooner or later after hemoptysis, dyspnœa and cough are apt to ensue; the chest grows flat, the shoulders round, and the clavicles prominent; the face becomes pale and spent, while there is a singular liability to cold, followed by expectoration and the other phenomena of phthisis. Pneumonic hemorrhage or pulmonary apoplexy, as Laennec, from its suddenness, has named it, is circumscribed and partial, the lung so far, becoming red and indurated. The parenchyma is rarely lacerated, but instances to the contrary are related by Gendrin and Corvisart. This occurrence is purely mechanical, as proved in a case by Watson, in the Middlesex hospital, wherein the discharge of blood, from ulcerated lingual artery, gave place to a lesion precisely similar. In another by Andral, the lungs being diseased, blood forced its way into the pleura, inducing inflammation and death. The health of a stout joiner, says Gendrin, in his *Traité Philosophique, hémorrhagies interstitielles*, was very much improved by the cessation of habitual epistaxis; but this, four years after, was followed by dyspnœa, cough, deep-seated thoracic pain, and, finally, the discharge of a tumblerful of pure blood. Tubary respiration, mucous rattle, and dulness on percussion, both anteriorly and posteriorly, subsisted in the upper part of the right lung. Fatal peritonitis ensued, and two indurated portions—one large as a hen's egg, another as a pigeon's, were found in the centre of the right lung. If pneumo-hemorrhage terminate favourably, the symptoms progressively decline; otherwise, the patient may be carried off by consecutive inflammation, external hemorrhage, blood gushing from the nose and mouth, with coughing and vomiting—internal hemorrhage into the pleura, the countenance being deadly pale and the dyspnœa extreme, or, lastly, by fatal asphyxia with livid face and lips. Mahon, professor of the Faculty of Medicine in Paris, perished of this disease; and Dr. Fortassin was found dead in his bed, stretched on his face, blood flow-

ing copiously from the mouth and nostrils, as well as effused into the pleura. Pneumo-hemorrhage may be associated with disease of the lung, but is occasioned by impediments to the circulation, such as narrowing of the mitral or pulmonary valves, conjoined with hypertrophy of the ventricles, entailing congestion in the pulmonary veins. In one of two well-marked instances which I met with, both with cardiac disease, the hemorrhage was so copious and repeated, that I apprehended instant dissolution. This patient afterwards died with tuberculized lungs and mesenteric glands, and effusion into the peritoneum; the other still lives. Should pneumo-hemorrhage not prove immediately fatal, it may be expedient, when the patient's strength and the hemorrhagic molimen lead us to apprehend the recurrence of the discharge, to bleed copiously. The bowels must be attended to, and perfect repose enjoined. After-inflammation, may be combated by leeching and counter-irritation. In the cases under my own observation, the hemorrhage was too considerable to permit me to bleed, but I derived advantage from tolerably large doses of the tincture of opium, with blisters; subsequently, the effused blood being absorbed, dulness disappeared. But one case is recorded, and that by Gendrin, of recovery after hemorrhagic effusion into the pleura.

Though the patient be at all times subject to it, I have observed greater dyspnœa in the early, than in the after stages of phthisis; Andral, indeed, justly comments on the facility with which respiration takes place, when, perhaps, two-thirds of the pulmonary parenchyma have become impermeable. The constitution appears to adapt itself to the change; less blood circulates, and less is required for the wants of the economy; still there are more or less discoloration of the surface and etiolation of the tissues. In three young females recently under my care, the bad breathing, as the poor sufferers termed it, was the most harrassing feature of their complaint. In acute phthisis, when the lungs become speedily impacted with tubercles, suffocation grows very urgent, and proves one of the causes of speedy death. The accumulation, also, at the right side of the heart, occasionally deranges the action of that organ. The cough is of a peculiar harsh, hacking character, and though sometimes absent, rarely fails to attend the complaint throughout. In one example furnished by Andral, there were dyspnœa and nightly sweats, but no cough whatever. Although the lungs sounded well on percussion, and the respiratory murmur was even louder than natural, the conclusion was, that points of tuberculization subsisted in these organs; a diagnosis that was verified on the patient's death from chronic peritonitis and muco-enteritis, by the discovery of numerous tubercles, from the size of a millet-seed to that of a nut. So long as the initiatory bronchial affection subsists, the cough is frequent, painful, and easily renewed; when the former subsides, however, there is often no more of the latter than what barely suffices for the expulsion of purulent sputa and softened tubercle. In some young subjects, Andral saw cough put on the aspect of hooping-cough; in other respects, this observer hardly believes in sympathetic cough from the stomach, liver, or uterus. It is a vulgar belief that portions of lung are coughed up; nothing, however, is rarer. The little rounded fetid pellets from the muciparous follicles of the tonsils, must not be confounded with tubercles. Independent of

the contents of caverns and discharge from their walls, by much the larger portion of expectorated matter is furnished by the bronchial lining. Bayle adverts to a rare production in the sputa, which I have seen, not unlike boiled rice. I have witnessed a pint, at least, daily expectorated for months; proving, were proof necessary, that the sputa are mainly a product of immediate secretion. In a few instances, they are suspended for a day or two; still more frequently, probably from inability to expectorate, are they interrupted towards the close. It may happen that a vomica shall open so suddenly into the bronchi, as, after a few vain efforts, to induce asphyxia. I have seen some, in which I am joined by Roche, who could hardly be said to cough, yet in whom there was copious, and almost spontaneous expectoration in the morning. Calculeous or cretaceous sputa, occasionally large as beans, and doubtless, the remains of dried-up tubercles on the road to recovery, have been known to ensue. In fact, Andral, by dessication of tuberculous matter, has brought it, he alleges, to a stony consistence. Fetid sputa may be owing to partial gangrene; a rare occurrence in man, less infrequent in the brute. Young Darwin supposed that the relative gravity of pus and mucus, as compared to water, would point out the difference; others propose as tests, the iridescence visible between glass plates, or solubility in acids; but, independent of the futility of these trials, the conclusion sought for is obviously forestalled. Sometimes the sputa sink, at others they float; sometimes consistent and defined, at others, fluid and amorphous; sometimes ragged and floccular, again, forming circular flat masses floating in a gummy liquid, and, from their resemblance to pieces of coin, termed nummular. These, as also the ash-grey sputa, are, on the whole, as Roche observes, more frequent in phthisis than in chronic bronchitis, and when tinged with blood, afford a tolerably certain indication of the nature of the disease.

Diarrhœa was present in one hundred and seven, out of one hundred and twelve cases; but I have not met with it so frequently. It is commonest towards the close, but may subsist comparatively early in the complaint, and is closely connected with intestinal lesions, ulceration in particular. The diarrhœa of the consumptive, as well as the heavy perspiration which assails them, bears the epithet colliquative; and, when urgent, is a most distressing complication. Occasionally, phthisis is associated with other complaints, diabetes, fistula in perineo, and dropsy. The mind seldom desponds, and patients retain their hopes and affections to the last; or if a passing cloud should gloom, its effects are soon dispelled, while exuberant prospects and copious plans of conduct are indulged in the very jaws of death. Patients, unless warned by meddling interference, are rarely aware of their situation; and changes, which, if rapid, would appal the most resolute, are looked on without dread when they ensue gradually. I have met numbers in all classes, however, abundantly resigned, and prepared to meet that death whose approach they anticipated. I have had great distress, said a poor woman, who lay, burnt up with consuming hectic, on straw in a wretched garret, and if it be God's will, would rather die. Many care not so much for themselves as for those whom their absence shall leave forlorn and destitute. An exilo often spoke to me of his aged mother, who, in a distant Polish town, lamented the son whom she

was never to see again. He mourned sickness more than banishment; he might return from exile, but felt there was no return from the grave. His dying words—*wenn ich nur nicht krank wäre*, were I only not sick, still ring on my ear, and touch my heart. I have seen those who, in the extreme moments of life, full of love and affection towards their relatives, dwelt with hope and confidence on the good providence of God; proving that the mind did not participate in bodily decay, and that there was a haven in which the soul was about to seek refuge from mortal pains and sufferings. Some die with astonishing calmness, and a tranquillity that defies physical anguish. A young advocate, of high endowments, often adverted to his rapidly approaching end with unaffected serenity. On the last evening of his existence, the oppression was such as not to be alleviated. About midnight, he was heard to observe—what weight is this that bears me to the earth; and shortly after—this is death, this must be death, this can be nothing else than death; and invoking a blessing on those around, expired. Clark, the successor of Cook, attempted again and again, amid floating ice, and when far gone in consumption, the passage of Cape Horn. Even in his last moments he was busied in promoting the safety of the ship and crew; giving directions not only as regarded existing emergencies, but as to what was to be done after his decease.

Louis and Laennec, on authority which Andral repudiates, divide phthisis into two stages, that which precedes, and that which follows the softening and evacuation of tubercles; the first, attended with hemoptysis and dry cough, afterwards purulent sputa, and slight pains in the sides and between the shoulders, little alteration on percussion and auscultation; the second, with troublesome cough, greenish or yellowish, sometimes bloody sputa, fever, dyspnoea, and pleuritic stitches, pectoriloquy, gurgling, and dulness on percussion. Out of one hundred and fourteen cases summed up by the first of these writers, about one-fifth died from the first to the sixth month; two-fifths from the sixth to the twelfth; rather less than a fourth from the first to the second year; and somewhat less than a fifth from the second to the twentieth year. The average duration of the disease, as observed by Bayle, Louis, and Andral, was about two years; this Clark would advance to three: in two instances, Bayle found that one hundred and four died within nine months. Winter and spring are periods of the greatest mortality; but something depends on the time in which the disease began. Young persons resist the ravages of phthisis worse than those advanced in life. Louis found the greatest fatality during the first year among females; but, in tables drawn up by Clark, relating to Hamburgh, Rouen, Naples, Berlin, and other places, this is reversed. The former writer sets down the mortality in phthisis as one in three. Of three hundred and fifty-eight deaths recorded by Chomel, one hundred and twenty-three died of phthisis; a proportion which, if tuberculous patients, dying of other diseases, be included, is increased nearly to one half.

From 1796 to 1799, one-third of the deaths in London, which is about the proportion in Willan's practice, arose from phthisis; and Young asserts, that one-fourth of the population is thus carried off. Great, though inferior, mortality still prevails in the Levant, in Italy, and in the south of France; nor is the disease absent in the East or West Indies. I do not remember any cases on the Coast of Africa,

save among persons who brought the complaint along with them. In New-York, the deaths, from 1815 to 1835, were fourteen hundred and fifty-eight. Of these, five hundred and ninety-two were Europeans, of whom one in three and a quarter died of phthisis; in coloured people, one in four and a quarter; which, if deducted, leaves for the white natives only one in nine and a half. This, which is abstracted from the annual report of the city inspector, shews the influence of climate on the negroes, and increased mortality among destitute emigrants.

Portal, Bayle, and others, admitted several forms of phthisis: cancer, indeed, by seizing on the lungs, simulates the disease; but, since Stark's time, the designation is properly restricted to tubercles. Of nine hundred cases, says Bayle, six hundred and twenty-four were tuberculous, one hundred and eighty-three granular, seventy-two melanotic, fourteen ulcerous, four calculous, and three cancerous. Tubercles consist of a yellow, semi-concrete substance, not unlike decayed cheese, varying in form with the locality, but generally, from the surrounding pressure, globular. They are from a pin head to a nut in size, though sometimes much larger; and, in most instances, softening from the centre to the circumference, undergo elimination. In some few cases, tubercle dries up, assuming a cretaceous aspect. The term vomica has been applied to softened tubercle, and cavern or ulcer, to the cavity. The walls of such may be smooth, or anfractuous and irregular; and as tubercles may increase by accretion, so caverns become larger by uniting. They are occasionally of immense dimensions. I have met with them large as an orange; and Louis speaks of a cavern which extended from the summit of the right lung to within three quarters of an inch of its base, and from the posterior margin to within half an inch of the anterior. In one case, he found a fibrinous mass included, in another, a fragment of healthy lung. Traces of nerves or bloodvessels are rarely discoverable; but the columns or bridles which traverse them, are esteemed by Schröder Van der Kolk, in opposition to Louis, obliterated vessels; and he even describes an instance in which one remained in part pervious—*in quo trabeculum, utroque fine clauso, in medio adhuc apertum mansit*. Intercurrent with tubercles, or preceding them, small, grey, semi-transparent bodies or granules may be seen; these, once regarded as a peculiar form of phthisis, are now considered convertible into tubercle, and by Louis and Laennec, its elementary form. In other respects, Cruveilhier and Andral conceive that tubercles are first fluid, afterwards hard, from absorption of the attenuated portions. Tuberculous matter may be infiltrated, so that when the lung, as Baillie remarks, is cut open, it displays a whitish structure, like a scrofulous gland about to suppurate: Andral, however, looks on this as a form of chronic pneumonia. The lung, in the neighbourhood of tubercle, is rarely healthy; but, as Roche observes of the skin in the vicinity of old ulcers, displays serous infiltration, sanguineous congestion, and induration. Tubercles are generally found in both lungs; but Louis, in five instances, saw them confined to the left, and twice to the right lung. They are, however, as Stark first demonstrated, much more abundant in the left lung. In thirty-eight subjects, Louis found tubercles twenty-eight times prominent in the left lung, ten times in the right. They are not only more frequent, but larger, and further advanced in the summit, than the base of the

lung. As to the anatomical seat of tubercle, Roche and Lombard refer it to the interlobular tissue; Magendie and Cruveilhier to the vesicles; while Andral places it in both. Carswell conceives that tuberculous matter may be separated from the blood, and deposited on free mucous and serous surfaces. Independent of animal substances, a small proportion of muriate of soda, as well as carbonate and phosphate of lime, enter into the composition of tubercle. Contrary to the opinion of Laennec, Baron, and Carnichael, tubercles, most assuredly, are not organized bodies, or endowed with life; hence local irritation, and their eventual elimination and expulsion. The bronchial mucous membrane, more especially at the summit of the lung, may be perfectly healthy; at other times it is red, thickened, and, perhaps, ulcerated. In one hundred and twelve subjects, says Louis, only one was wholly exempt from pleuritic adhesions and occasional effusion. If tubercle, however, do not soften, if cavernization do not ensue, neither do adhesions form. Andral once found the left lung enveloped from the summit to the base with a false membrane, studded with tubercles, there being few in the lung itself. False membranes, indeed, are very apt to undergo degeneration; and this writer has seen the pericardium, pleura, and peritoneum, thus simultaneously implicated. It seems, as he remarks, a kind of general law in some individuals, that every inflammation, irritation, or congestion, should be followed by the morbid secretion. He has found enormous scrofulous masses filling the posterior mediastinum, and surrounding the bronchi, like chaplets; and, this in a few instances, when the lungs were exempt from tubercle. Obliteration of the human bronchi from pressure of enlarged glands is not on record; but Reynaud discovered it in the monkey. I have found, with Carswell and Hope, the bronchial glands, doubtless after preceding tuberculization, converted into a cretaceous mass. Louis affirms, that these glands are affected once in every ten cases; the cervical, and more rarely, the axillary glands, participate in similar changes.

In three-fourths of the cases of Lérminier, the laryngeal mucous membrane was thickened, softened, covered with false membranes, or red; at other times, inflamed and gorged with tuberculous matter, to which ulceration slowly gave vent. The chordæ vocales, one or both, and thyro-arytenoid muscles, were often destroyed, the voice being lost. At other times, ulceration extended to the cartilages, eroding and divesting them of their perichondrium. Destruction of the rings of the trachea has been observed; in other respects, ulceration, which was most frequent in men, seemed to occupy, indifferently, the posterior and inferior surface of the epiglottis, larynx, and trachea. In several instances, Louis found the stomach enlarged and displaced, with perhaps injection or softening of the mucous coat. This softening, or ramolissement, in which, along with ulceration, the large and small intestines participate, and which Andral and he would connect with a vital process, I am well assured is cadaveric. Ulcers, which Louis detected with greater or less frequency, in five-sixths of the cases, were often preceded by tuberculous granulations. Rarely larger than a split pea, they were commonly seated near the close of the cæcum, and opposite the insertion of the mesentery; when large, they occupied the whole circumference of the intestine, through the mucous and muscular coats of

which they occasionally penetrated, leaving only the peritoneum. In a case by Louis, one vast ulcer, seven inches long, implicated the cœcum and right colon, followed by perforation and peritonitis. In another by Bright, the caput cœcum coli and vermiform process were alike involved. The mesenteric glands, though not soft, were tuberculous in one-fourth of the cases, as attested by Andral, Louis, Papavoine, Billard, Lombard, and Carswell. Fatty degeneration of the liver, so called from the soil on the knife, and the stain in paper, ensues in about one-third, and is, doubtless, owing to tuberculous infiltration. Isolated tubercle, indeed, is rare in the liver. It is much more common in women than men, and often attended by a morbid hypertrophy. Tubercles are also detected in the spleen, urinary and genital organs, as well as in the serous membranes of the lungs, brain, and abdomen; so that, independent of the lungs, these organs, as Louis observes, were reduced to a condition adequate to the production of death. Even the bones, as it appears by the researches of Nélaton and Natalis Guillot, more especially in children, are not exempt.

The Duchesse de Pienne, says Portal, died of phthisis in ten or twelve days; here, however, pneumonia had probably ensued. A young man with scrofulous disease of the hip-joint, from being in a state of apparent good health, in fine spring weather contracted a cough, which ran consecutively through all the periods of fatal phthisis, and cavernization under the right clavicle, within the short period of three months. I have seen the disease more than once, terminate in six, but, more frequently, twelve months and upwards. Tubercles may remain latent for one, two, three, or four years; when, perhaps, after some bronchial affection, they suddenly maturate, soften, and are discharged along with copious purulent sputa, hectic, colliquative diarrhœa, perspiration, and death. How often do anxious friends desire an opinion on young people, with cough, anhelatous breathing, and slight pain, often low down in the side. We auscultate, we percuss, but, with exception of perhaps slight bronchial rattle, the respiration and sonoreity are good. We pronounce a qualified prognosis; and, too often, when next consulted, find dulness under the clavicle, purulent expectoration, and night sweats. A gentleman about thirty, whose growth had been rapid, and who lost a brother and sister in phthisis, complained for about four years of wandering pains down the side, with indifferent breathing. Suddenly influenza, with smart bronchitis, ensued; whereupon, purulent sputa, hectic, and, in nine months, death. A Palatine laboured under what he called asthma; there was no dulness, but bronchial rattles of great variety and intensity, which neither bleeding, blistering, nor antimony served to dissipate. After some time, he took ship for Demerara, but, when he had been twelve days out, died. On inquiry, the captain told me that the patient had had heavy sweating, and that he spat copiously. In fact, tubercles, particularly when small and disseminated, sometimes remain latent for years, if not for life, till some exciting cause rouse the morbid tendency into fatal activity. In three cases described by Andral, death took place after three and five weeks. In one of them, tubercles, with slight phthisical symptoms, had subsisted for years; when suddenly a cavern formed, and the patient died in eleven days. Louis describes five cases that were fatal in from thirty to forty days; one of them, how-

over, was attended with pneumonia. He justly observes, that when cough, dyspnœa, expectoration, and fever ensue, apart from any known cause, and without signs of pneumonia, pleurisy with effusion, or suffocative catarrh, and which do not yield to curative measures, we are to dread the supervention of acute phthisis. This writer has given eight cases of latent disease, in which tubercles preceded the cough from six months to two years. Andral mentions cavernization along with catarrhal expectoration. A youth of eighteen, says this pathologist, presented obvious symptoms of chronic entero-peritonitis. There was neither cough nor expectoration; yet, after death, besides tuberculous false membranes in the peritoneum, and ulceration of the mucous coat, the summit of the right lung, independent of smaller ones, contained a cavity capable of holding a small apple. Instances of sudden death when the disease was not far advanced, and which could not be explained by the condition of the organs after death, are related by Louis and others. It often happens that patients walk about till the eve of their decease; instances of which have come more than once under my observation. Thus, a phthisical gentleman, who had gone to the coast of Africa, while dining with his friends, was observed to lean suddenly back in his chair; on being examined, he was no more.

The discoveries of Avenbrugger and Laennec, as to the utility of auscultation and percussion, have brought many things, previously matter of inference, within the boundary of physical inquiry. It is admitted, however, by those who have made these their chief study, that they are not implicitly to be relied on, and do not always enable the attentive practitioner to yield the information—the yes or the no, which anxious relatives expect him to impart. Some have pushed the unquestionable, and, indeed, invaluable utility of these procedures beyond what actual results warrant; while others either deny them altogether, or make them a mere flourish of empiricism. In hemoptysis or bronchial hemorrhage, the intermixture of air and blood produces a mucous rattle: in pneumo-hemorrhagy or pulmonary apoplexy, there is also a mucous rattle, with large bubbles, but which is conjoined with a moist crepitant rattle, tubary respiration, and more or less dulness on percussion. In the former, the symptoms only last while hemorrhage continues: whereas, in the latter, the symptoms persist, and may even be unattended with discharge. When the disease, however, is on the decline, tubary respiration is replaced by the crepitus of resolution. In hemoptysis the blood is vermilion-coloured and frothy, in pulmonary apoplexy it is commonly of a brick-red or brownish hue. Tubercles, with hemoptysis, occur mostly in the summit of the lung, a part in which pneumo-hemorrhage is rare. In the latter again we are to look for hypertrophy of the left side of the heart, often contraction of the left auriculo-ventricular orifice. When rupture of the pleura ensues, we shall have dulness over the lower part of the chest, coincident with tympanitic sonoreity of the upper, great dyspnœa, oppression, and the usual evidence of pleuro-pneumonia. Hemoptysis will hardly be confounded with mœna or vomiting of blood, or with hemorrhage from the pharynx or gums, consequent on ulcers, scorbutus, or other causes.

To the clear and lucid exposition furnished by Laennec, little has been added, and from it, little can, with advantage, be taken away. Since tubercles, in general, commence near the summit of the lung.

it is there as this observer remarks, that we are to seek for them. He was of opinion that the right lung was most frequently affected, a point in which, however, the great majority dissent from him. If tubercles be small, not numerous, and surrounded by considerable portions of sound parenchyma, or should they occur in the centre of an emphysematous lung, the chest will remain not less sonorous, and the respiratory murmur not less pure and distinct than in health. Louis recently observes, that if we find under either clavicle, in connexion with the general symptoms already described, a lessening, however slight, of sonoreity, concurrently with feebleness, or, indeed, any appreciable alteration in the respiratory murmur, we are bound to admit the existence of incipient phthisis. In such cases, as I have repeatedly observed, the second sound or that of expiration becomes audible; a fact to which Fournet and others attach great importance. Hirtz speaks of a hard, rough, rasping character in the respiration; but Louis, while he admits these distinctions, esteems them rather overdrawn, and of no very great importance. For, as this able and scientific practitioner observes, it is more from the collective of the signs and symptoms that we are to decide, than from any of them taken separately. Indeed, it may so happen, should caverns arising from discharge of vomicae prove very small, that patients shall die of phthisis without any auscultatory evidence of tuberculous engorgement. When tubercles, however, are numerous and highly developed, they impart proportionate dulness, to which the induration which they engender, adds. The latter persists even after the formation of caverns; hence, dulness and absence of respiratory murmur round a well-defined spot of which the sonoreity is excessive. Dulness indicative of tuberculization, is, in general, apparent immediately below one or other of the clavicles: Laennec, to whose testimony I may be permitted to add my own, has seen it extend so low down as the fourth rib. It rarely or never happens that both clavicular regions are equally implicated; though when dulness, in other respects, affects one, it is presumptive, as Stokes remarks, of tubercles in the other. As regards percussion on the lower anterior portion of the thorax over the heart, Raciborski, in place of the forcible stroke counselled by Piorry, advises a very gentle one, the index finger of the left hand being employed as pleximeter. In this way, a faint resonance is heard over the lung, but none over a space from an inch and half to two inches square, corresponding with the heart, the very thing wanted to determine. It must not be forgotten that the chest, every thing else alike, is more sonorous in aged than young persons. Laennec was of opinion that dulness was apparent on the anterior or clavicular region only; as Andral, however, remarks, the sonoreity, though naturally less, may be so far diminished in the supra-spinal and infra-spinal fossae as to indicate the lodgment of tubercles. In percussing behind, it is expedient to fold the arms or to stretch them forwards; in this way, the process may be extended downwards far as the interlimitations of the spleen and stomach. Percussion in the axillary region yields indications not less valuable than those already signalized. Louis mentions an able practitioner who pronounced solidification of the right lung, not adverting to the circumstance of the liver being thrust up by excessive intestinal meteorization. The heart, also, is sometimes displaced from the same cause. Tubercles, however, after

acute thoracic inflammation, may proceed from below, upwards, and simultaneously invade the whole lung. In a case examined by Louis, tubercular dulness supervened on the seventeenth day of what appeared simple acute bronchitis; a fact, by the way, rather in opposition to this writer's opinion, that phthisis does not ensue after inflammation. In one-third of the subjects he found the whole of the upper lobe devoid of sonoreity, converted into tubercles with excavations successively smaller from the summit to the base. Should bronchitis, as often happens, subsist in phthisis, it is usually circumscribed and local, whereas ordinary catarrhal affections do not confine themselves to a single portion of the bronchial tree. Tubercles are attended with a striking diminution of the respiratory murmur. This is to be ascertained, not only directly, but by comparison with the lower portion of the suspected lung, as well as with the opposite. Allowance, also, must be made for the natural feebleness of the respiratory murmur perceptible in some subjects, over one or both sides. In the unaffected parts, the murmur is louder than natural, so as to gain the denomination of puerile, from that which obtains in childhood and youth. By so much as it is diminished in one side, by so much is this puerile or supplementary respiration increased on the other. As before remarked, the act of expiration, which, with some exceptions, is inaudible in health, is attended with a murmur in disease.

When tubercles soften, the respiration, of whatever character, becomes commingled with rattles of greater or less intensity. When the former give place to caverns, the sound on percussion in the vicinity, as already observed, continues dull, as well from pulmonary induration, as from tuberculous interstitial infiltration; the soft vesicular murmur of health may even be lost, and converted into tubary or bronchial respiration. As I have said before, it sometimes happens that the deposition and softening of these foreign bodies, more especially in the case of concurrent pathological lesions, may never be discernible during life. Thus, in a subject described by Andral, who died of chronic peritonitis, though the chest had sounded well on percussion, and the respiration throughout was clear and forcible, the lungs were studded with red indurations, containing great numbers of miliary tubercles. A medical gentleman labouring under hemoptysis, who still lives, consulted the profession in Dublin on the state of his lungs, when it was declared that the right lung was tuberculous; not satisfied with this, he went to Edinburgh, where he was told, such is the occasional uncertainty of the diagnosis, that the left only was affected; thence he proceeded to London, where he was assured that neither side was implicated. When caverns of some size form, they modify respiration more or less, so that when the patient breathes, coughs, or speaks, the sound seems to come direct to the ear; hence, the terms cavernous respiration and pectoriloquy. Independent of mucous rattles, there is often, more especially during the act of coughing, a gurgling or churning in the caverns. Pectoriloquy may be perfect or imperfect, doubtful or certain; and in persons of coarse rough voices, may border on bronchophony; but in females of slender vocal caliber, the difference is sufficiently obvious. Laennec has detected it in individuals whose voice was otherwise so weak as not to be heard more than a few feet off. When caverns are large, numerous, multilocular, anfrac-

tuous, or irregular, the voice in the chest becomes feeble or inaudible. Here, however, it may be replaced by amphoric respiration, a sound like that produced by blowing over, or into a bottle, from communication with a bronchial tube. If the cavity be filled up or obstructed, the change is not audible; hence it is well to examine at different times of the day, and after coughing. I have detected it at the inferior angle of the scapula, as well as at both ends and below the clavicle. The latter, however, is its most frequent seat, and that in which its diagnostic value is greatest. Sometimes, as in the case of a large cavity filled with air and liquid matter, and communicating with the bronchi, a peculiar tinkling ensues, audible, not only during respiration, but on percussion, and often associated with a noise like that produced by striking a cracked jar, or joined hands on the knee. Both are well known by their French names, *tintement métallique*, and *bruit de pot fêlé*. The latter, which Raciborski has observed in healthy children, he thinks should be made to include both; while Andral saw it twice simulated by a cross worn round the neck, and steel in the stays. Laennec warns us, not always an easy task, to distinguish pectoriloquy from laryngophony and bronchophony; also, in making post-mortem examinations, when the lungs are adherent, not to tear cavities across, as their apparent absence might throw discredit on the diagnosis. Stokes connects greater importance with cavernous respiration and gurgling, than with pectoriloquy; yet Andral avers that there is no rattle having its seat in a tuberculous excavation, that may not be equally induced in the bronchi; and he has met with gurgling wholly analogous to that ensuing in large caverns, when, after death, very small cavities, quite inadequate to its production, were alone discoverable. Louis observed tracheal respiration and pectoriloquy, coincident with a succession of dilated bronchial sacs, in the upper part of the right lung. I attach the greater importance to this dissidence, as illustrative of the difficulties of the subject, and of the necessity of not confiding in one sign to the neglect or prejudice of others.

When tubercle, in place of escaping by the bronchi, perforates the adjacent pleura, and discharges itself with air and fluid, into the cavity, the term pneumo-thorax has been applied. This occurrence, which, with few exceptions, is attended with great pain, leads to pleuritis, oppression, dyspnoea, sometimes aphonia, and may prove fatal within twenty-four hours. It has been commonly found to ensue about the angle of the fourth rib. When air is effused, the lungs collapse in proportion; hence, sonoreity of the upper part, and dulness from the fluid contents below, while the respiratory murmur is either absent or confused and imperfect. Succession, whether accidental or intentional, unless the pleura happen to be full, produces a splashing sound, alike evident to the sufferer and observer. In a recent case of far-advanced phthisis, with hectic and purulent sputa, effusion, either from tubercle escaping into the cavity of the pleura or coincident inflammation, gradually occupied the cavity of the left pleura, inducing some degree of dextrocardia, with great dyspnoea and impossibility of lying on the right side. An apparent abscess, however, formed below the mamma, which pointed and gave issue to a purulent, then sero-purulent discharge, with immediate relief to the cough and dyspnoea. These reappeared when the opening closed, with fresh, though

temporary relief after the formation of another outlet, consequent on puncture, to the copious discharge. The patient, a young lady of fourteen or fifteen, whose sister died of phthisis, still lives, but greatly attenuated. Raciborski has published an instance of tuberculous excavation communicating with a subcutaneous focus. Phthisis with fistula in the parietes, has been recorded in a recent English journal, but there was no examination after death. In pneumo-thorax we have metallic tinkling, which, from acute, becomes grave, as the fistulous opening enlarges its dimensions. This has been variously ascribed to the falling of a drop of fluid or the escape of a bubble of air into the cavity. In one instance by Townsend, perforation took place from the presence of only one tubercle, which, it so happened, was situated immediately under the pleura. Houghton mentions a poor labourer who survived a year and a half in this condition; Stokes speaks of a gentleman who was able to go about a year or more; and Laennec relates a case in which the individual survived for a matter of six years. The history of the case will enable us to discriminate between pneumo-thorax, as consequent on discharge of tubercle into the pleura, and empyema with pulmonary fistula, as well as hepatic abscess making its way through the diaphragm and bronchial tubes.

Acephalocysts or hydatids are not discovered once, perhaps in a couple of thousand cases. Instances are described by Morgagni, Peter Frank, Richter, Otto, and many others. The only certain pathognomonic sign of hydatids is their expulsion: Briançon, however, speaks of a peculiar vibration on percussion, which has been compared to that produced by a violin string, or striking the face of a repeating watch. In a case in which the lower portion of the chest was dull on percussion, Andral discovered, in the inferior lobe of each lung, a vast pouch filled with hydatids. They have been found not only in the parenchyma, but in the pulmonary veins, and may communicate with the pleura or bronchi. As elsewhere, they are of variable size, and may be met with at all ages. They are not to be confounded with steatomatous tumours sometimes discovered in the lungs, or with emphysematous elevations of the pleura. Melanosis may occur, whether infiltrated or encysted. Crude, it resembles the matter of the bronchial glands; and when soft, tinges the fingers like sepia or Indian ink. Laennec describes it as inducing gradual emaciation and general exhaustion, with effusion into the cellular tissue, and even the serous cavities. It is distinguished from tubercle, in the living subject, by the absence of symptomatic fever. Bayle describes two instances of cavernization in melanotic subjects. The lungs are liable to alterations of colour in coal-miners and others, sometimes mistaken for melanosis. Andral, however, looks on the latter as a variety of chronic pneumonia. The lungs are subject to encephaloid degeneration. Cancer, also, may be encysted or diffused, crude or soft: it may originate primarily in the lung or extend to it from other parts; as when it commences in the anterior or posterior mediastinum. In the cases described by Bayle, Cayol, Velpeau, and Andral, the disease was always coincident with cancer elsewhere, as in the nose, breast, testicle, liver, uterus, brain, or absorbent glands. The cancerous diathesis and the ablation of cancerous masses, are prominent sources of the disorder. As to the physical signs, we have difficult breathing and decubitus, absent respi-

ratory murmur, and dulness on percussion; also, cough, varied sputa, and foul breath. In a case which I had under my charge, the disease extended through the intercostals, and thence by subsequent adhesions to the lungs: the patient, after labouring under aggravated hectic, perished in the last degree of emaciation.

The remote or predisposing causes of phthisis are numerous; but doubtless, in the great majority of instances, a cachexy or morbid tendency, hereditary or superinduced, subsists prior to the local change. Louis, Andral, Bayle, and Papavoine, affirm the greater frequency of the disease among females, scrofulous subjects more especially; an assertion that would seem disproved by the preponderance of the sex alive. However this may be, women have to incur menstruation, childbearing, and nursing; they are more confined to the house, and are, perhaps, more subject to depressing passions. Men, on the other hand, are more exposed to atmospheric vicissitudes, inflammations, and physical injury; they are also much more addicted to excess. Numerous inferior agencies, however, operate equally to the prejudice of both sexes. Fernelius, Maton, Hufeland, and Roche, admit an hereditary tendency to phthisis: Billard, Langstaff, and others, have even detected tubercles in the lungs of the new-born, and of the foetus. I have known whole families carried off. Sometimes one escapes; and sometimes the complaint, like scrofula itself, passes over one generation to appear in the next. I have met cases of consumption before puberty in men, and prior to menstruation in women; but, still, the malady is most rife and destructive from eighteen to forty. More would probably perish in advanced life, were not the number of the susceptible diminished. There can be no doubt, that occupation often exercises great influence; yet the rich, who are addicted to none, are carried off in great numbers. Among accidental sources, fever, and the febrile exanthemata, display considerable influence in the predisposed. I am now attending a gentleman in whom fever was the apparent exciting cause.

Mineral dusts are excessively destructive, giving rise to local irritation and tuberculization in those who inhale them; just as particles of quicksilver are said to do, when this mineral is passed down the trachea of rabbits. Thus, the stone-masons of Edinburgh, the needle-pointers of Worcester, the dry-grinders of Sheffield, and the flint-cleavers at Berri, in France, as well as elsewhere, unless they leave off in time, are destroyed at an early period. Some occupations are preservative: butchers, who live in the open air, take abundant, though not excessive exercise, and consume rich, nutritious food, are almost all exempt from tubercles. I recollect no phthisical, or even scrofulous butchers, except in the case of those who had not been brought up to, or long engaged in the trade. In fact, a highly azotized food, together with the life that butchers lead, almost constantly in the open air, is opposed to phthisis. Gouty people, it is well observed by Roche, do not become consumptive. Carnivorous animals, every thing else alike, are less liable than herbivorous: the cows in Paris, and other large towns, unduly confined to close stalls, are universally tuberculous; just as rabbits, as Baron has shewn, become so when treated in a similar manner. Whereas, horses, however artificial their food, do not contract tubercle in nearly the same proportion, in consequence of their free and frequent access to the open air. The practice of keeping sitting-rooms

darkened, to save furniture, is decidedly injurious. We are insufficiently clothed, especially in winter; and, in place of living in the free, open air, grovel in the narrow, and often sordid precincts of rooms and houses. The consequence of all this, more especially in large cities, is evident in the young. Depressing passions are destructive; not so much perhaps by their direct influence, as by withdrawing attention from acts necessary to the healthy maintenance of animal life. Laennec speaks of a nunnery in Paris, the inmates of which, with few exceptions—such was the austerity of the rule, were swept off by phthisis twice or thrice within ten years. Despondency, weariness of mind, and uncorrected sedentary pursuits, are alike injurious. The ill effects of sexual excess, of intemperance, of disease, and of the abuse of medicine, are well known. There can be no doubt, with Fothergill, that over-feeding, out of proportion to the expenditure or powers of digestion, is injurious; but, for once that the predisposition is created by excessive nutriment, the converse is the case in hundreds and thousands. Phthisis has been witnessed on the suppression of cutaneous eruptions; though, perhaps, not so frequently as has been alleged. The Germans even speak of *Raudenschwindsucht*, phthisis psorica, from suppression of scabies; and the subject has been referred to by Autenrieth, in his *Dissertatio de morbis ex scabie orientibus*. I attended a young lady, whose sister died of consumption, for a herpetic affection, with moderate redness, in the face. I ordered mild aperients when required, with exercise, and enjoined her to apply no local lotion. So long as the eruption lasted, which was for years, she enjoyed excellent health; but, after returning home from a visit, it had disappeared, and shortly after, whether as cause or consequence, rapid and fatal phthisis ensued. People in the south of Europe will hardly admit consumptive patients into the house: Morgagni was averse, on the score of infection, to examine their remains; but the notion is too improbable to require serious refutation. I have again and again witnessed the closest contact night and day without any such result; but am free to confess, that I have more than once known the disease follow the grief, the loss of appetite, of exercise, and of rest, consequent on the unintermitting care of a beloved object. In every such case, however, there was evident predisposition. Of all the indirect causes of consumption, says Roche, the prolonged operation of cold and moisture is the most frequent; that this is so, is proved by the uniformly greater frequency of the disease in cold than in warm climates. The lungs, says Rudolphi, suffer in cold regions, the liver in warm: and when we consider, with Begin, the great facility with which cutaneous impressions are translated inwards, we shall not be surprised at the frequency of tubercle. The inhabitants of warm latitudes, whether man or brute, are apt to become consumptive when they resort to cold. Journé, indeed, remarks, that as many tuberculous cases may be found in the hospitals of Rome as in those of Paris. The people at Marseilles are very liable to phthisis; yet a patient from England will live longer in either than a diseased native. When some European and negro soldiers were stationed on an elevated plateau in one of the West India islands, the whites enjoyed the best health, whereas, many of the blacks contracted phthisis. And M. Clot remarks, that slaves from the burning regions of Sennaar are sometimes cut off in Egypt, a country in which

tubercle is rare. It is asserted, and I think with much probability, that the Dutch and Russians, when they abandoned their warm costume, became much more liable to phthisis. Nothing then seems better demonstrated, than that the continued operation of depressing corporeal agencies are solely productive of this hideous scourge. The powers of nature are gradually undermined, a certain morbid change is undergone by the blood, and tubercles, according to age, sex, and predisposing cause, are developed with extraordinary rapidity in the lungs, mesenteric glands, and other organs. Now, if we suppose thoracic inflammation, or intestinal irritation to ensue, is it surprising that tubercular deposition should follow? I know that Bayle, Laennec, and Louis, are justly opposed to inflammation as an unconditional cause; but, that it is an occasional one of great influence, we have the concurrent testimony of Broussais, Bouillaud, Magendie, Cruveilhier, Roche, Andral, Gendrin, and Alison. Inflammation in sound constitutions will produce no such result; but its effects are greatly to be apprehended in those who are phthisically disposed, and whose progenitors and congeners have laboured under the disease. I have witnessed several instances, in which this unhappy sequel seemed but too apparent. How common is mæco-enteritis in warm climates; yet, there I never saw it give rise to scrofulous engorgement of the mesenteric or other glands. A healthy person undergoes repeated bronchial attacks with impunity; yet one such, perhaps, proves destructive to the phthisical. Have we not daily experience staring us in the face as to the frequency with which wet feet, currents of air, lying on damp grass, showers of rain, and the midnight dance, lead to bronchial, pneumonic, or pleuritic inflammation, tubercularization, and death? Louis's arguments are conclusive against inflammation being the only cause; but they appear to me to fail when applied to it as a conditional one.

How else is it that a cold climate, and the cutting east wind, prove so injurious to the consumptive—or how is it, when tubercles, if produced at all, have only gone a certain length, that a warm region and tepid winds retard their progress? Pulmonary inflammation, indeed, is rife in the one case, absent in the other; here the lungs are the principal exhalent, there, the skin. Andral, even, is of opinion, that, in the great majority of cases, more or less local congestion, bronchitis, or lobular pneumonia, precedes tubercular deposition. Scrofulous sores and swellings are obviously the exterior manifestations of tubercle: like mesenteric tubercle, however, they are more common before, than after puberty. They seem, in some cases, to act as a kind of drain; and I have known families nearly all carried off by phthisis, with the single exception of those in whom scrofula, so termed, had thus developed itself. The predominance of consumption in light-complexioned persons, in these regions, is purely the result of the prevalence of that complexion; I meet with the complaint proportionably as often in the dark and swarthy.

Neither prussic acid, nor conium, nor digitalis, nor mercury, nor tartar emetic, nor asses' milk, nor vegetables, nor beef-steaks and porter, whether exhibited empirically or with scientific precision, will cure consumption. But where these fail, nature sometimes succeeds; though, unfortunately, we cannot imitate the process. The only cases of recovery which Roche witnessed, were two in which caverniza-

tion, perhaps the only certain pathognomonic sign, subsisted. Yet, when recovery ensues, how can we be certain, considering what Andral justly terms the immense difficulties of the diagnosis, whether the disease was phthisis or not. How numerous the instances which we are unable to distinguish from intercurrent pneumonia, pleuritis, or bronchitis, and in which we are only aware of the fact from the issue; while, at other times, in the lungs, as elsewhere, tubercles may pursue their course of silent devastation without a sign. Bayle was of opinion, that recovery, on any terms, was impossible. I witnessed three instances, in which purulent sputa, night sweats, hectic and emaciation, were most decided. Laennec, Andral, Fournet, Hirtz, and Rogée, what from occasional cicatrization of cavities, what from cretaceous transformation of tubercles—which, as the last has shewn, is more frequent than what is commonly supposed, have argued for the occasional curability of phthisis. To these rare occurrences, however, Louis attaches comparatively little importance. The treatment of hemoptysis, when combined with tubercle, merges under the head of the latter. Should hemorrhage ensue from wounds or blows, or prove vicarious of suppressed hemorrhoidal or menstrual discharge, the indications are different. As to ordinary hemoptysis, some practitioners always bleed, while others justly confine depletion to cases attended with general plethora or local congestion. A stout girl, with brilliant complexion, presented herself to me while labouring under hemoptysis and suppressed menstruation. Ten or twelve ounces from the arm, with the compound aloetic pill, followed by the sulphate of magnesia, senna, and bathing the feet, sufficed to arrest the one, and induce the return of the other. Venesection and leeching, in the case of weak, debilitated subjects, are out of the question. I have given two or three grains of the acetate of lead, with a little conium or henbane, every six hours; attending, at the same time, to the bowels, the feet, and the skin. In diluted sulphuric acid, with infusion of roses, I have less confidence; indeed the affection, if not needlessly aggravated, and avoiding exciting causes, usually disappears, of itself, in the course of a few days. In other respects, undue vocal efforts are to be proscribed, while the patient should be kept quiet and cheerful. We are too apt to forget that the hemoptoic molimen is but an effort of nature to relieve a general, but, more frequently, a local morbid action, and should not be unduly interfered with.

The pleuritic or bronchial affections, which so often complicate the early periods of phthisis, may require venesection; in other cases, as in the more advanced stages, leeching will commonly suffice. I have witnessed pleuritis, even when the disease was far gone, so violent as to require copious depletion; but this occurrence is rare. In pleuritis after pneumo-thorax, little can be hoped from treatment. The operation for empyema, were it not otherwise inexpedient, entails the risk of gangrene. In frequent irritability of the stomach, I have found small blisters externally to afford relief; as, also, the internal administration of soda-water and ginger-syrup, or hock and seltzer, when admissible. Prussic acid, if at all, must be very sparingly administered: almond emulsion is about the best vehicle. Urgent purging demands attention; but the remedies which relieve it, are not otherwise calculated to benefit the patient. Sometimes an emetic of ipeca-

cuanha, plain or toasted, has been found to check diarrhœa, and relieve the cough. Bright and Elliotson recommend the sulphate of copper. Louis has found the extract of datura stramonium useful for this purpose; other French practitioners prescribe the syrup of quinces, or common mucilage; also, the electuary termed diascordium; sometimes the infusion of ratanhy, catechu, and opium. To this last, indeed, we shall in most cases, eventually have to come. I employ the black drop, the acetated tincture of opium, laudanum, and morphia. Pills of half a grain of the muriate of morphia, two grains of ipecacuanha, and some extract of gentian, I have found truly soothing in the last stages. I would defer these substances as long as possible; for, although they lessen diarrhœa, they increase hectic, impair appetite, and once begun, cannot well be left off. In a few cases, costiveness obtains; but, in obviating this, we must be careful to exhibit the mildest aperients; some electuary, as that of senna, a rhubarb pill, or an enema of milk and water, generally suffices. Ripe juicy fruit, or any favourite drink, may be given to abate the devouring thirst. The perspirations are hardly relieved by mineral lemonades. An alternate couch, particularly in summer, is expedient; also frequent lotions with vinegar, or *eau de Cologne* and water, over the hands, face, and temples, which, while they cool the surface, remove adherent sordes, and induce repose. I have no idea of the utility of confining the patient to a rule of diet: many lives have been shortened by taking away fleshmeat, and even fermented drinks, and substituting jellies, mosses, arrowroot, and other semifluid preparations, on which the patient's feeble powers quickly decline. Some, indeed, are unduly sanguine as to the efficacy of a nutritive regimen: it will not cure the disease, but it will certainly keep the patient longer alive.

Antimony, in the early stages of phthisis, combined, if necessary, with an opiate, facilitates expectoration, and lessens the severity of the cough. I know no remedy from which the sick have derived so much comfort; and I may add, that the few cases of recovery which I witnessed, took place during its exhibition. To the poor, among whom bronchial complications are frequent, it affords great relief. Morton, Parr, and others, enlarge on the efficacy of emetics: but a recent writer, De Vittis, has gone the length of asserting, that he has cured one hundred and seventy six confirmed cases by their exhibition. Beddoes looked on digitalis as specific. Sooner or later, however, this remedy induces the sensation of a ball of wool in the stomach, and patients lose the little appetite they previously enjoyed. Digitalis and prussic acid, by lessening the heart's action, will pull down the pulse; but this is wholly inoperative in curing the disease. Stokes and Graves enlarge on the efficacy of mercury in what they term scrofulous inflammation of the lung; but no one need anticipate that it will remove the complaint. I have employed the compound iron pill, and the steel mixture, called after Griffith, without the least advantage; of bark and quinine, I can say no more. Tar, iodine, and chlorine, diffused through the atmosphere, or inhaled by means of an apparatus, induce cough and expectoration, but do not remove phthisis. Clark, however, says that he has known chlorine to produce an apparent suspension of the disease; while Gannal goes so far as to aver several cures.

In the prophylaxis we are to aim at improving the general health,

and warding off occasional or predisposing causes. It cannot be that nature intends the destruction of so many in their early prime. The very mortality is presumptive of some infraction, which being obviated, things would go on otherwise. I am, myself, firmly persuaded that proper air, food, and exercise would go far to diminish the evil immediately, and eventually to render it comparatively infrequent. A judicious alternation of vegetables, fruit, eggs, milk, and bread, would, I doubt not, suffice to maintain human stamina in fullest vigour. At any rate, we find that those well supplied with animal food, and who take plenty of exercise in the open air, are exempt or nearly so, from scrofula and phthisis. It is notorious that butchers and fishermen, their wives and children, are strong and vigorous, and that consumption is not among the diseases which shorten their career. Now, the important inference is not, assuredly, to make people follow these occupations, but to supply every one, from youth upwards, with abundance of nutritive food, warm clothing, and copious exercise in the open air. Butchers and fishermen, the latter particularly, often intermarry; they inhabit inferior dwellings, they are exposed to evils, griefs, and cares, inhabit a cold wet climate, and yet are exempt from consumption. A great deal has been said, and well said, on the manner of rearing children, and avoiding scrofulous nurses; yet butchers, fishermen, and even savages, for whom able physicians draw up no hygienic rules, have offspring free from all phthisical taint. Every one of formed constitution, and children in proportion, should live at least four hours daily in the pure sweet air. Short of this, the blood is not oxygenized, nor does it undergo those other depuratory changes so opposed to the tubercular cachexy. The body should be further well covered, so that at all seasons, with moderate steady exercise, animal warmth might be efficiently maintained; the surface, in a word, should be kept warm, and the circulation active. Exercise in-doors, though excellent in its way, is no substitute for that in the open air, where the currents play free and the sun's light flows unrestrained. Cold or tepid sponging, or immersion, is good for both adults and children, and so inures the frame to climatic influences as to neutralize their occasionally baneful effects. Houses and rooms ought to be adequately heated and ventilated; sleeping apartments should not be unduly crowded with drawers, tables, and other lumber. Ox-beef, wether mutton, good fowl, and fish are consumed by the rich; yet of these, with good bread, fruit, and vegetables, there should be an abundant provision for all. Deficiency in the pabulum of life only increases fever, consumption, and other destructive complaints. The absurd and brutal practice of taxing the necessities of life, has tended, in every country, to promote disease. The octroi at the gates of Paris on wine and eatables, as Duchâtelet and Dezeimeris have shewn, leads to the adulteration of the one, and the substitution of an inferior article for the other. Diseased cows, inferior sausages, rabbits, and even horseflesh, are largely consumed in that great city, to the proportionate augmentation of consumption and scrofula. The excessive duties on foreign wines, malt, tea, coffee, and sugar, lead to the substitution of ardent spirits, falsification, and intemperance without end. A sanitary police might interdict industrial occupations destructive of life. Dry grinding by hand should be prohibited by law; moist, though not con-

ferring so high a polish, answers every purpose. Stones might be cut by machinery, or, otherwise, kept wet. Intermarriages, though they unquestionably enhance the tendency, have been exaggerated as causes of consumption. The Pitcairn islanders, like every isolated community, intermarried again and again; yet their offspring, it is said, display admirable health and vigour. Jews, so far as I know, are not peculiarly prone to phthisis. Change of climate may not cure, but will often avert consumption. Forbes does not speak favourably of Penzance; indeed there is not much use in dabbling about home, or even going to the South of France or Italy, where the disease, in fact, abounds: I would recommend North or South Africa, or New South Wales. Madeira is a delightful place; I have spent some weeks in it; but, as Renton and Gourlay shew, it is not free from the complaint. Laing, though not a medical authority, mentions that phthisis is rare in Australia; Clôt makes the same remark with regard to Egypt. I would advise those who are anxious about their children, and who have the means, to remove at once to the southern hemisphere. Such expedients, however, will not lessen the average mortality of phthisis, and are quite beyond the reach of the great majority; to whom, now and always, the best and surest safeguard will be attention to the laws of our physical nature in relation to outward influences.

VIII—ASPHYXIA.

Loss of life from interruption to the process of respiration is so frequent, as to render it necessary to take some notice of asphyxia. The term, though not quite correct, appears to come from *σφύξις* or *σφύξε*, pulse, and *α*, privative. The causes of asphyxia are mechanical, as drowning, hanging, and some forms of suffocation; or poisonous, from the respiration of impure air and poisonous gases. Nitrogen acts as a mere privation. Sauvages, in his Nosology, enumerates no less than seventeen forms of asphyxia, many of which, however, are unreal or incorrect. The most convenient division, I think, is into asphyxia from the non-introduction of atmospheric air, from the absence of oxygen, and from attempts to breathe irrespirable or poisonous gases. The first category comprises cases from suspension, immersion, the falling-in of banks of earth, pressure on the umbilical cord, excessive cold, and the action of lightning; the second, those from respiring air in which oxygen is lessened by passing through the lungs of numbers, or by having supported combustion; and the third, those from attempts at respiring carbonic acid or oxide, nitrous acid, ammoniacal, or other gases. Asphyxia from accumulation of mucus in the bronchial tubes has been adverted to elsewhere; a form of asphyxia is also produced by dislocation or fracture of the vertebræ above the intercostal or phrenic nerves; the spinal accessory alone being inadequate to maintain the process of respiration. The consideration of asphyxia from the operation of narcotic and other poisons, from the introduction of air into the chest, and the section of certain nerves, is purposely omitted. In some cases, the respiration is quickly, in others slowly arrested. How imperious, as Adelon terms it, the desire of breathing is,

any one who will try to hold his breath more than a minute, may readily convince himself. To the satisfaction of this desire the first steps of asphyxia oppose obstacles nearly or wholly insurmountable. Hence, pain, extreme thoracic oppression, violent respiratory efforts, vertigo, sparks and flashes before the eyes, suspension of consciousness and of voluntary efforts, lastly, automatic motions and death. Appearances afterwards, will vary with the nature and operation of the cause; hence, in many cases, swelling and livor of the face and lips, staring eyes, protuberant veins, to which Mr. Hayden adds injected teeth. While the mode of death is sometimes depicted on the countenance, there are, at others, no traces of violence or suffering, the deceased having more the aspect of one in placid sleep, than of irrecoverable dissolution. When we further add warm surface, rosy countenance, pliable limbs, and fluid blood, it is obvious how difficult it will prove to convince the by-standers that life is extinct.

Some authors, as Heischmann and others, enter into numerous particulars relative to the varieties produced in hanging, by the manner of adjusting the ligature, as by a professed executioner or one who commits suicide. Stories, also, are told of persons who have been saved by an ossified larynx or the previous performance of tracheotomy. The present method of projecting criminals, insures greater probability of luxating the atlas, and by the joint pressure on the spinal cord, the vessels, and the trachea, of quickly arresting both respiration and circulation. It is to be hoped, from the narratives of those who have recovered from attempts on their lives, that after the first short anguish is over, the victim feels little pain, and that the apparent convulsive motions are purely automatic. Asphyxia from immersion is characterized by very similar phenomena. It was supposed that water entered the lungs of drowned persons; but, in fact, the minutest portion, as Goodwyn has shewn, coming in contact with the rima of the glottis, is expelled with violence. Inferior animals, even monkeys, from the resemblance between the act of swimming and ordinary mode of progression, sustain themselves with ease as compared to man. When immersion is continuous, the suffering is much curtailed, but a succession of risings to the surface prolongs the agony. Spallanzani, Edwards, and others, have made some interesting experiments on the immersion of inferior animals, as regards the coldness of the medium. Persons who jump from a height, are sometimes so affected by the concussion as to be disabled from further exertion. An instance of this is related by Captain Hall, of a negro, who, after plunging from the yard-arm of a frigate, sank progressively into the abyss. This appears more frequently the case when the descent is made head foremost. Criminals placed in the earth, or with weights on the chest, are slowly suffocated. This had nearly been the case with a pugilist mentioned by Roget, in whom an envelop of plaster of Paris was on the point of superseding the action of the respiratory muscles. Many perish yearly, owing to various casualties, as occurring in well-sinking, and mining operations. In some places, ecclesiastical criminals, by a refinement in cruelty, were walled up alive, and thus left to expire. Asphyxia of the newborn, from compression of the umbilical cord in protracted labours, is not uncommon. In fact, the placenta is supplementary to the lungs, and when any thing interrupts the communication between it and the child,

the lungs not being in a condition to act, asphyxia necessarily ensues. The child, however, either from extreme weakness or the pre-existence of uterine hemorrhage, may come into the world in a state of syncope; which, as Gardien, in the *Dictionnaire des Sciences Médicales*, observes, must be distinguished from the other. The operation of cold in subduing the vital energies, first signalizes itself by stammering and thickness of utterance, like what takes place in drunkards, and an urgent desire to sleep, which, if indulged in, proves the prelude to death. Chilblain and mortification are among the local effects of cold after sudden reaction. Larrey mentions that in the return from Russia, those who, after long-continued exposure, ventured near the fires of the bivouacs or into heated apartments, independent of gangrenous seizures, were apt to fall down asphyxied. Those from the south of Europe, he mentions, resisted the effects of cold uniformly better than the northerners. Franklin, Back, and Richardson, slept half-starved in the snow, when the temperature was forty degrees below zero; an immunity which habit must have helped to procure. Serum has been found in the ventricles after death.

When a number of individuals are included in a limited space, the air will be surcharged with ammoniacal gases, with moisture, and with a superabundance of nitrogen. Thus, asphyxia has been caused in slave-ships, and passenger-vessels; and we all know the unpleasant sensations produced in a crowded, ill-ventilated apartment, with many lights burning, and even in a dense crowd in the open air. The case of the black-hole at Calcutta, where Mr. Holman and one hundred and forty-six companions were confined, and out of which only twenty-three issued alive, is well known. Many perish after rash descents into brewers' vats, limekilns, and wells. Any one who has experienced the pungent sensations produced by holding the eyes and fauces over a fermenting vessel, will readily perceive how difficult it must be to undergo immersion and live. Carbonic acid, alone, is irrespirable, and even when diluted, kills within the minute. In this last case, though it enter the lung, its direct poisonous qualities, in which it differs from azote, and even from hydrogen, are clearly established by the experiments of Collard de Martigny and others. Of the individuals thus destroyed, who have come under my notice, I recollect none restored to life. The respiration of air deprived of oxygen by combustion, and rendered additionally destructive by its products—carbonic acid and carbonic oxide, causes numerous deaths, both in these countries and on the continent. Many were the burns which I witnessed in the Hôtel Dieu, after asphyxia, induced by the practice of stall-women and others, sitting over choffers of glowing charcoal. The stoves made use of on the continent, and recently in this country, particularly when the tops, if any, are left off, sometimes entail the same result, as I once had nearly occasion to experience. The numbers annually cut off in Britain alone, by burning coals or other fuel in close apartments, or under ships' hatches, are incredible. Every one has heard of the younger Berthollet; and the induction of suicide thus, is frequent in France. Grown persons resist longer, and recover sooner, other circumstances alike, than children. The body, according to Orfila, preserves its warmth and muscular irritability long after death, while the vessels and lungs are gorged with dark-coloured blood. The

escape of hydrosulphuric acid, hydrosulphate of ammonia, nitrogen, and other gases, while clearing out the *fosses d'aisance* in Paris, is often productive of danger and death to the workmen. The hydrosulphate, according to Thenard, is often so copious as to constitute a third of the water in the fosse. This compound mephitic gas sustains combustion, and induces a frequent smarting in the eyes. The symptoms are cephalalgia, fainting, involuntary cries, delirium, sardonic laughter, opisthotonos, pale face, dilated pupil, foaming at the mouth, convulsive respiration, and asphyxia. Often, the subject falls down dead the moment he enters the fosse. It is singular, so long as tumbrels or sewers are not adopted, that those who enter such places are not previously furnished with a head-piece and flexible tube communicating with the open air. Recently, France justly rang with the heroism of a servant woman who rescued five men who lay dying in one of these hideous fecal receptacles.

In syncope, the blood, however imperfectly, is still arterialized, the lungs not being wholly devoid of air; whereas, in asphyxia, the deficiency in this respect leads to deterioration of the vital fluid which accumulates in the pulmonary artery, vena cava, and right side of the heart. In syncope from hemorrhage, the vessels, both arterial and venous, are more or less deplete. The blood in asphyxia, says Kay, becomes incapable of exciting the organic sensibilities of the pulmonary vessels, and therefore stagnates in the lungs. I should rather, however, ascribe the deficient respiration and pulmonary circulation to a more obvious source; namely, the absence of air, with its beneficial stimulus and mechanical assistance. We may conclude, says Bichat, at the close of his ninth article on life and death, that when the chemical functions of the lungs, coincident with those of the heart and brain, are interrupted, the organs cease to act from the immediate contact of dark blood. The pulmonary vessels, however, do not refuse the dark blood of cholera; and its circulation, concurrent with the continuance of thought and locomotion, shew, however eventually destructive, that it is not so immediately deleterious as this renowned pathologist supposed. It is almost needless, after the foregoing, to advert to the theory of Goodwyn, as to the connexion of life with respiration, which assumed that the presence of unchanged venous blood in the left cavities of the heart destroyed their contractility. This writer, indeed, dwells on the well-known fact, that after the fullest expiration, air remains in the lungs; still, circulation must ensue with greater facility when these organs are fully supplied with their natural pabulum. It is, however, quite certain, as Kay observes, that asphyxia is produced by causes which prevent air, at least pure air, from having access to the chest; but, as to the manner of this, notwithstanding all that this writer, Haller, Goodwyn, Bichat, and others have said, we are still in the dark. Kay asserts, page 182 of his treatise, that circulation is arrested in about three minutes and a half, when the lungs are entirely deprived of air, no blood escaping from them into the left cavity of the heart; yet, in page 123, he admits that Goodwyn has shewn that air enough always remains to permit the blood to circulate. *La theorie*, says Berard, *dans laquelle on fait dépendre l'asphyxie du défaut d'oxygénation du fluide nourricier, est, à mes yeux, incomparablement plus satisfaisante, et plus en rapport avec les faits observés.* This, however, does not explain the immediate cause of death,

which I would still mainly refer to the impossibility of the blood circulating through the lungs, apart from the act of respiration. The blood, indeed, becomes dark; but this is a consentaneous phenomenon, and probably not immediately connected with the event. An ordinary individual may hold his breath for a minute or so, and a practised diver, as I have witnessed on the Coast of Africa, perhaps two; but any longer period is inevitably productive of asphyxia, and, most probably, death. Those who fall into the water in a state of syncope, recover after a longer period than when asphyxia is produced by the submersion; but the stories which we read of resuscitation after hours, and even days, of immersion, are about as worthy of credit as those related of Nicholas, surnamed the fish.

Asphyxia, more especially in the case of drowning, too usually lapses into death ere any curative measures are adopted. Whatever be the source, however, voluntary motion and consciousness remain but a short time after the cessation of the act of respiration, and latent vitality very little longer. Having no positive criterion, however, as to the advent of death, the majority of attempts perhaps are made with persons actually defunct. The vital spark, indeed, is easily extinguished. This was well exemplified in the case of a robust seaman who perished, I may say, before my eyes, from the swamping of his boat. Immersion did not subsist many minutes, but I was wholly unsuccessful in restoring animation. Instances of resuscitation, however, are extant after hours of trial; and the Humane Society do well to enjoin the continuance of our efforts, for at least six hours. After the body, in the event of drowning, is taken out of the water, it should be carried, the head and shoulders elevated, to the nearest house, and there stripped, dried, and enveloped in blankets before the fire. I have made persons undress and lie beside the body; which, at the same time, is to be assiduously rubbed, the mouth and nostrils being freed from froth and mucus. Many persons should not be needlessly present. Bladders, bottles, filled with warm water, hot bricks, salt, or oats, are to be applied, previously wrapt up, to the stomach, feet, and sides. At no time should the head be suffered to fall on the chest, nor must the chin be thrust down, the glottis being thereby closed. Few are provided with curved canulas and bellows, with graduated arc, intended to guard against rupturing the air-cells; a risk, as Leroy d' Etioles has shewn, not wholly imaginary. A gum elastic tube, or large catheter, with the end cut off, is easily procured, and, duly curved by means of the contained wire, may be gently passed along the sides of the epiglottis into the larynx, the former being raised, as Kay advises, by pressure on the root of the tongue. Some would introduce the nozzle of a common pair of bellows into one nostril, the remaining one and the mouth being closed; or, the mouth of the operator may be substituted: in all cases, exercising moderate compression on the *pomum Adami*, so as to prevent the air, otherwise a tolerably certain occurrence, from finding its way into the stomach. This done, let the lungs be gently but steadily inflated: the hands may then be pressed on the sternum to evacuate the chest, and thus alternately, so long as may be expedient. This procedure is simple; and the appliances, a point of great practical importance, within the reach of every medical man. In the hands of non-professional persons, the Humane Society propose alternate compression

and spontaneous expansion of the chest, about twenty-five times in the minute, by means of sheets or blankets, each end being torn into six stripes, two feet long, and duly crossed in opposite directions; thus, the process of respiration may be imitated, and perhaps reinduced. The experiment of Vesalius, who caused an animal, with open thorax, to respire artificially, by means of bellows adapted to the trachea, is calculated to demonstrate the good effects of insufflation. It is not expedient, however, to open the trachea in the human subject. Fairbrother of Bristol recently restored a boy who had been half an hour under water, and a quarter more before any means were employed. Leroy d' Etioles induced asphyxia in several animals; and it was observed, as I have in other instances witnessed, that those left to themselves died, while the galvanized ones were saved. A successful instance, with regard to the human subject, is related in an American journal; and Babington, who resorted to galvanism along with other means, was equally fortunate. The process consists in inserting a short fine needle, a few lines deep, in each side, so as to reach the insertions of the diaphragm: the opposite wires of a Voltaic pile of twenty-five or thirty pairs, are then to be brought in contact with the needles, and immediately withdrawn when inspiration should ensue, and so on alternately, till the respiration perchance becomes regular. Good proposes the transmission of the electric fluid from the phrenic nerve in the neck, or the par vagum, under the mastoid muscle, to one side the chest; a procedure which I have known to succeed in rabbits. In asphyxia from intense cold, insufflation may be resorted to. If any part be frozen, it must be rubbed with snow before a warmer medium is employed, a courtesy which Russians exercise towards one another in the streets. No one after exposure to intense cold, should suddenly enter a highly-heated apartment, or approach a fire; and stimuli, or warm drinks, should be employed in small quantities at a time. In threatened asphyxia from intoxication, we should do all we can to rouse the individual: ligatures should be removed from the neck and elsewhere; the head should be kept raised; and, if the surface be cold, a fire should be resorted to. I have found flagellation with rods, and slapping with cloths dipped in ice water, useful after hours of exertion, in instances that, if neglected, would, to appearance, have proved fatal. The stomach-pump, in recent cases, will be available. Persons after juridical suspension rarely recover; suicides sometimes do. Even after apparent recovery, here, as in other cases, the individual sometimes sinks from the effects of reaction on the brain. Bleeding may now be expedient, though questionable at an earlier period. Persons perishing from the effects of irrespirable gases, should be instantly exposed to the pure, fresh atmosphere, and even dashed with water; taking care to wipe them warm and dry, and not to induce too great a degree of cold. The preceding measures have also been employed in asphyxia of the new-born. I have resuscitated a child by means of simple insufflation; and witnessed the revival of another after a smart slap, when it had been pronounced putrid. In all cases, if we would succeed, it is necessary to be alike prompt, judicious, decided, and persevering.

CLASS III.

DISEASES OF THE ORGANS OF CIRCULATION.

I.—CARDITIS, INFLAMMATION OF THE HEART.

CARDITIS, independent of its rarity, very seldom ensues apart from inflammation of the lining or investing membrane. Hence, as Corvisart observes, not merely the concurrence of carditis, endocarditis, and pericarditis, but of these with pleuritis, pneumonia, and bronchitis. Inflammation, says Laennec, is infrequent in the substance of the heart, as it is common in other organs; yet, as Andral remarks, it is rare to meet inflammation in the muscular structure of the stomach, bladder, or intestines, as in the viscus under consideration. Since inflammation does not readily pass from one structure to another, it has been thought more frequent in the cellular, than the muscular tissue, concomitantly with endo and pericarditis; yet such transitions, as from the lungs to the pleura, and conversely, are far from unusual; otherwise, cold, and metastatic rheumatism, are alike productive of inflammation of the substance and membranes of the heart. Muscular carditis, with unequivocal traces of morbid alteration, is very seldom met with; in other respects, it has been divided into local or general, acute or chronic, latent or manifest. The only recorded instance of general carditis, is described by Latham and Stanley. Here innumerable points of pus were seen on making a section of the ventricles: the heart was tinged with dark-coloured blood, and its substance softened. When the inflammatory process is circumscribed, abscesses are occasionally discoverable in the walls of the left ventricle, or in the auriculo-ventricular septum. It is necessary not to confound softening and discoloration, met with in the heart, as in other tissues, after bad fevers and as ensuing after death, with inflammation. The latter, in other respects, is productive of inordinate softening, so that the viscus no longer resists pressure of the finger. Coagulable lymph has been mistaken for ulceration; the latter is more frequent in the interior than on the surface, and may prove the source of rupture, and, according to Bouillaud, of false consecutive aneurism. Perturbation of the heart's action, precordial pain, dyspnoea, anguish, and fever, are common to inflammation of the substance, as of the lining and investing membranes. The symptoms are sometimes nearly latent. Copland concurs with Heim and Krause, in thinking, that the diagnosis may sometimes be made out; but Bouillaud never met carditis exempt from endocarditis or pericarditis; and observes, that signs of the latter alone arrested his attention. *Jusqu' ici*, says he, *je ne connais aucun signe qui puisse caractériser*

spécialement la cardite. In a case by Corvisart, in which there had been pain, dyspnoea, irregular intermitting pulso, and delirium, a pint of purulent fluid was discovered in the pericardium, the inner surface of which abounded with false membranes; the heart, pale, and easily reduced to yellow pulp, seemed as if infiltrated with fatty matter; while a vascular net-work lined auricles and ventricles, and even penetrated into the substance of the viscus. In two others, the pericardium was distended with a lactescent, puriform fluid; while the heart was soft and devoid of consistence. The pericardium, in two cases by Meckel, besides containing purulent fluid, was covered with a purulent crust, underneath which the heart was corroded and inflamed. In one, by Hildanus, the pericardium was filled with pus, and the heart reduced to a pulpy consistence. Raikem mentions a woman, who, after three attacks of articular rheumatism, was seized with rigors, palpitation, lancinating pains in the precordia, difficult breathing, and prolonged lipothymia. Death, preceded by extreme disorder in the circulation, ensued on the twentieth day; the mind being collected to the last. On examination, there was double pneumonia, the pericardium was sound, the heart enlarged, with induration and narrowing of the mitral valve; while tumours, containing a thick, sanious pus, abounded on the posterior surface of the left auricle and appendage. In a case of carditis, with coincident rheumatism, by Simonet, the pericardium contained a reddish serum along with false membranes: the endocardium, covered with a thin exudation, was red; while two yellowish spots on the pillar of the mitral valve, being cut into, gave issue to pus. Cassimir Broussais discovered a small abscess in the substance of the heart, behind the mitral valve. Graves adverts to encysted abscess in conjunction with endo and pericarditis; Bouillaud, to rupture, preceded by ulceration in the left auricle of an old man, whose pericardium contained a couple pounds of blood. I have witnessed similar instances myself, while others are recorded by Morgagni and Corvisart. Independent of the walls, there may be erosion and perforation of the valves or interventricular septa; also rupture of one of the columnæ carneæ or its tendon. Children, as Billard, and Puchelt in his treatise *de cardite infantum*, remark, may present the worst forms of valvular disease. Sometimes these ensue after exanthems, or, as I have witnessed, though more rarely, after acute rheumatism. Corvisart mentions the case of a negro, who entered La Charité labouring under short and broken respiration with great anguish. Here an aneurism, almost large as the heart, between the pericardium and fleshy substance of the viscus, was discovered. Other instances are collected by Breschet, in his *Mémoire sur l'aneurisme faux consécutif du cœur*; Reynaud and Bouillaud, indeed, esteem induration and partial ossification as results of cardiac inflammation. This last, with Corvisart, Laennec, and Broussais, relates instances in which the heart had become hard as leather or bone. Burns and others tell of ossification; but the most extraordinary example that I have had occasion to witness, occurs in a preparation in Monro's museum. Bouillaud, according as the viscus is red and injected, or infiltrated with pus, divides softening into red or white. Chronic carditis, though some writers advert to it, can hardly be said to have pathological existence. Wounds in the heart, dangerous as they commonly prove, are not always immediately fatal. Sanson, in his thesis sur

les plaies du cœur, mentions a soldier who died after five days' exposure to intense cold, with mortification in both legs; the right lung and right ventricle, which had been pierced through and through, were quite healed. Another, after a gun-shot wound in the region of the heart, lost several splintered ribs along with a purulent discharge. He died in six years, after much suffering, of another complaint, and a gun flint was found imbedded in the apex of the heart.

As carditis is inflammation of the muscular substance, so pericarditis is inflammation of the investing membrane of the heart. The cardiac or pericardiac portion, alone may be affected; in other respects, it may be acute or chronic: it may amount to mere redness and injection, or it may go on to the pouring out of serum, coagulable lymph, or pus. In a few instances, inflammation extends to the exterior of the pericardium, as evinced by adhesions with the pleura. Redness, as Hope observes, rarely pervades the whole membrane. There are patches of variable extent, of a dotted or mottled character, surrounded by numerous scarlet specks, sometimes with injection of the smaller vessels. Redness and injection, however, must not be invariably referred to inflammation. Contrary to the general opinion, Bouillaud affirms, that he has seen the pericardium thicker and less transparent than natural: it is necessary, however, not to confound adherent false membranes with thickening. The affected membrane separates very readily from the heart; displaying, not only sanguineous infiltration and inflammation of the subjacent cellular tissue, but of the muscular structure itself. The effused fluid may be clear, yellow, flocculent, separating into two portions, a solid and a fluid, sero-purulent, or sero-sanguineous; in a few instances, pure pus or blood, and from a few ounces to as many pounds, is discoverable. Baillie once detected a quart of pus, Bouillaud, a tumblerful. In a case, by Louis, there were four pounds; and, in another, by Laennec, two French pints. The false membranes and pericardium, when blood is present, are deeply tinged, probably from imbibition. Lymph, or fibrin, sometimes in confused masses, at others, regularly distributed over both surfaces of the pericardium, is occasionally alone discoverable. There may be one or a succession of layers, varying in density according to the number and recency of the attacks. In a few cases, the cavity of the pericardium is obliterated; in others, partial adhesion only ensues. Sometimes the alternate contact and separation of inflamed portions communicates a hirsuted or tomentose aspect, which Laennec and Hope compare to the appearance produced by the separation of plates of marble covered with butter. Passive effusion, as often witnessed, may ensue from transudation in bad fevers, and certain cachectic disorders. I believe that it is sometimes purely cadaveric. Chronic pericarditis may be so from the first, or prove a sequel to the acute disease: here, also, fibrinous exudations, rare according to Laennec, and sero-purulent effusion, are witnessed. Apparent thickening may ensue, which Bouillaud and others ascribe to inflammation of the subjacent cellular tissue, and to the organization of false membranes. Pressure from enormous accumulations of the latter, has been known to induce cardiac atrophy. Warty vegetations, like those in endocarditis, are rarely detected; white spots or specks are common, and dwelt on accordingly by Corvisart and others: I have frequently witnessed them. The heart in cases

of chronic effusion has been seen whiter and softer than usual; but neither Laennec nor Bonillaud esteem such changes inflammatory.

The diagnosis of pericarditis is better established since the time of Laennec, who conceived that few complaints were less easy of detection or attended with more variable symptoms. Elliotson, indeed, remarked, that the disease, at least in the acute form, would never be selected to shew the advantages of auricular examination. For the last two or three years, says Bouillaud, we have been able to detect pericarditis in the great majority of cases, with perfect certainty. The symptoms vary with the presence or absence of synchronous inflammation in the pleura, lungs, or endocardium; also, from causes difficult to appreciate; and consist of fever, acute and lacerating pain, more or less extensive, over the precordial region and base of the heart, sometimes radiating towards the axilla and along the arm, jactitation, dyspnœa, pale or livid countenance, hiccup, and even convulsions. The celebrated Mirabeau died after severe suffering; others, however, experience comparative ease. In some instances, Hope observed the pulse feeble, faltering, and intermittent. The heart's action is strong, irregular, and tumultuous; in the event of effusion, the impulse, irrespective of dulness on percussion, is faintly perceived by the ear or felt by the hand, while ordinary sounds are feeble and distant. If effusion be limited, dulness varies with its level and the patient's position, so as not to be apparent when he lies on his back. Its rapid occurrence distinguishes it sufficiently from hypertrophy of the heart. Louis, and more recently Bouillaud, have signalized occasional voussure or prominence of the precordial region. The latter remarks that the diastole or dilatation takes place in two times, and that it is accompanied by a species of crackling. Collin and Devillier were the first to detect the new-leather creak; but this is less frequent than a sort of rustling like that of silk or parchment, alike induced during the heart's systole, by its friction with the false membranes. Bouillaud, Latham, Stokes, and Hope, have, in a few instances, detected the bellows sound, with which Andral, however, has never been able to meet. The *bruit de cuir neuf*, is, perhaps, the only pathognomonic sound, and it is to be regretted that it is so rarely heard. When these noises are superficial, as if close to the ear each time the heart's apex is approximated to the chest, the presumption, with Raciborski is, that pericarditis subsists; should they, however, be remote, and more towards the orifices of the organ, endocarditis is more likely. I agree with some observers, that moderate pressure below the margins of the ribs, upwards, is of some diagnostic value, both in pericarditis and endocarditis. The signs of chronic disease are, more or less, those of acute; in other respects, pericarditis may last a few days, or even weeks, and, after all, merge into chronicity. Elliotson met with pericarditis in an infant. Corvisart saw complete adhesion in a youth of eighteen, whose heart, he affirms, was large as that of an ox; also, in a girl of thirteen, in whom this viscus was twice the natural size. Inflammation, however, is more frequent in adult life.

In the case of a young married lady from Martinique, in which Corvisart was consulted, the pulse, on the sixth day, was small and miserable, and the jactitation extreme. On examination, pleuro-pneumonia, partial adhesion of the pericardium, and sero-purulent effusion

were discovered. This writer mentions a potter long subject to rheumatism and dyspnœa, followed by anasarca, intermittent pulse, and death. Here, the pericardium was rough and thickened, with a little turbid effusion. Bertin, who is very full on the diagnosis, warns us not to confound pleurisy with pericarditis; and gives as signs of the latter, fever, dry surface, lancinating pain and burning heat in the precordia, incapacity of lying on, or stretching the affected side, anxiety, distorted features, fainting, continual jactitation, mixed with terror and despair; feeble, irregular action of the heart, small, frequent, and intermitting pulse; lastly, dyspnœa, cold sweats, livor, swollen features and extremities. Andral divides the disease into cases in which the diagnosis is easy; those in which dyspnœa is the only local sign; and those in which accelerated pulse, nervousness, and prostration, merely, precede death. In one of these, a baker, after acute articular rheumatism, was seized with sudden, acute, lacerating pain in the precordia, augmented neither by cough, pressure, nor inspiration, followed by death in twenty-seven hours. Here, a soft, whitish areolar membrane lined the whole inner surface of the pericardium. In a negro, agitation, sleeplessness, and acute pain at the base of the sternum, were coincident with the disappearance of articular rheumatism, death ensuing when the subject was apparently better. Albuminous exudations covered not only the cardiac membrane, but that which lined the fibrous bag itself; while a pint of turbid serum occupied the cavity. A shoemaker, after rigors and fever, was seized with acute pain on a level with the left mamma, radiating over the precordia and down the arm. A quart of reddish-brown liquid distended the pericardium, which was lined with false membranes the colour of blood. Andral gives a case in which the disease was fatal without pain, but with considerable dyspnœa: in another, there were extreme dyspnœa, asphyxia, and death, with dulness from serous effusion. One of the cases, equally fatal, supervened, with dyspnœa, petechiæ, and prostration, on the eighth day of small-pox. A woman with pale face and trembling lips, labouring under opisthotonos, was brought into La Charité; trismus, coma, and death ensued. No change was discoverable in the brain or spinal marrow, but serum and false membranes abounded in the pericardium. Another, we are told by Rostan, after profound coma, staring eyes, injected countenance, the pulse and motions of the heart being almost imperceptible, died on the fourth day; yet here, as in the preceding, bloody serum and false membranes were the only lesions.

Bouillaud divides pericarditis into three categories; the first, including the period of congestion, effusion, and suppuration; the second, that of organized lymph and absorbed serum; the third, that in which the lymph is fully organized and converted into fibro-cartilage or bone. His first case is that of an anasarcaous youth, who was seized with stertor and coma. On examination, the *bruit de cuir neuf criard*, and the bellows' sound, *bruit de soufflet*, were distinguishable a full inch from the precordia. The diagnosis, which the autopsy confirmed, was that of pericarditis with false membranes. In the next, which was fatal from relapse, with old and recent false membranes, pericarditis was combined with pleuro-pneumonia; and Bouillaud candidly admits that his mind was so preoccupied with the latter as to overlook the former. A boy, after some indisposition, was seized with trismus; on

getting better, he took a cold-bath, by mistake, and died in a fit of suffocation. There were softening of the upper and anterior portion of the spinal marrow, with two ounces of greenish pus in the pericardium. In a case by Fournet, with pleurisy to the right, the purring sound, *frémissement cataire*, was combined, both during the systole and diastole, with the sole-leather creak of Collin. In one of Bouillaud's cases, after erysipelas of the face, inflammation extended, not only to the pericardium and right side of the heart, but to the lung, diaphragmatic pleura, and spleen. Here, there was pericardiac rubbing, *frôlement péricardique*; the preeordial dulness, vertically and transversely, being about two and a half inches. While it must be admitted that pericarditis is sometimes so nearly latent as to escape detection, Bouillaud objects, with reason, to the term, when effusion and false membranes, render it physically impossible that the disease should be so. A patient, in a case by Bertin, labouring under pleuro-pneumonia, was seized with great anxiety, quick pulse, extreme dyspnoea, lacerating pain at the base of the sternum, and a sensation as if the chest were closed in a vice. The pericardium was prodigiously distended with pus and turbid serum, while its free surface was covered with false membranes mixed with fibro-cartilaginous tumours of older date. Independent of dulness on percussion, the bellows' sound, synchronous with the systole, was heard behind the shoulder of a girl. In a case under Brieheteau, of pericarditis, complicated with pleurisy, peritonitis, and articular rheumatism, there were anxiety, orthopnoea, and fainting; while the pulse, so far from being in unison with the violent action of the heart, was small, quick, and unequal. In a case of fifteen months standing, by Bouillaud, there were fibrous adhesions and extreme pericardiac induration. In another, the rasp sound, *bruit de râpe*, synchronous with the systole, and voussure or arching of the precordia, were most apparent. Here, a tumour, large as a pigeon's egg, involved the mitral valve. A small quantity of fluid is not readily discoverable, but Hope has made the diagnosis of hydro-pericardium, when there were only four ounces. He justly esteems it easier when there are eight or ten; in the event of which we have dulness on percussion, with an undulatory impulse, as if through a fluid, nearly synchronous with the ventricular contraction, sensible under the hand or stethoscope. Lancisi speaks of a weight experienced in the region of the heart; Larrey dwells on the frequent apparent cessation of the beat, an occurrence which terrified a patient of Cassimir Broussais. Testa and Burns both advert to varying points in which the impulse of the viscus may be perceived. Kreysig does not admit much change in the heart's action or in the pulse; whereas the latter, according to Senac, is harder than ordinary.

Inflammation of the lining membrane, though cases were observed by Kreysig, Baillie, and Burns, may almost be regarded as a newly-discovered disease. In other sorts of inflammation, the products testify for themselves, whereas in the endocardium, pus, serum, and lymph, are alike hurried away by the unceasing current. Too much importance being attached to transitory sounds of the heart, and too little to the condition of the blood, has caused the occurrence, according to Piorry, to be greatly exaggerated. Elliotson admits the frequency of chronic inflammation of the lining membrane at the openings of the heart. We are not to confound inhibition with inflammation: but, as

the foregoing writer remarks, we shall find intense valvular redness without a drop of blood in contact. Laennec esteems redness, swelling, and thickening, equivocal indications; not so, false membranes, and, perhaps, vegetations. Hope regards valvular disease only sometimes, Bouillaud almost always, as the result of inflammation. As the latter, however, observes, it would be a narrow view to vest the diagnosis of endocarditis in false membranes or pus, to exclusion of the physical and functional signs. The pulse of a girl of sixteen, it is related in the *Edinburgh Medical and Surgical Journal* for 1809, coincident with cessation of articular rheumatism, rose from one hundred and twenty to one hundred and thirty-six; she complained incessantly of her heart, and prayed that it might burst. On examination after death, the pericardium was free, but marks of inflammation were discernible in the left, still more in the right ventricle; while the valves and fleshy columns were red, and covered with coagulable lymph. I attended a young woman in 1827, who, after acute rheumatism, complained of intense constriction across the chest; pulse, one hundred and forty. She remained in this state for six weeks before she expired; but I could not obtain permission to examine the remains. An architect, subject to articular rheumatism, was seized with cephalic affection and fever. As this declined, the rheumatism also disappeared, the pulse rose, and the patient began to complain of dull pain and great oppression across the precordia. My diagnosis was endocarditis with hypertrophy. Copious depletion with leeches and the tartrate of antimony removed the oppression, the pulse sank to eighty, the patient sat propped up in bed, now able to converse and to take food. Suddenly, on the receipt of some distressing intelligence, he clapped his hand to his chest, exclaiming that he was gone. The pulse now rose to one hundred and forty, jugular undulation was considerable, heat of surface, livor, precordial and general distress, not to be described; and, notwithstanding the most active measures, death ensued, the mind being unaffected, in eight and forty hours. The lungs and pleura were sound, the pericardium displayed those white spots already described, with two ounces of serum in the cavity; the lining membrane, particularly to the left, was of an intense red, as were the mitral and aortic valves, the tinge extending some way down the aorta; while numerous polypoid concretions abounded in the cavities. In another case, a boiler-maker with chronic disease of the heart, dyspnœa, the greatest degree of fluctuation in both jugulars I ever witnessed, coagulable urine, and anasarca, contracted endocarditis, consequent on exposure to the north-east wind. Vehement constriction subsisted across the precordia, the pulse rose to one hundred and sixty. I bled him twice largely, the blood being cupped and buffed, with the greatest relief, and gave digitalis, antimonials, and mercury, till the mouth grew sore. The pulse diminished, progressively, to one-half; in a word, the patient rallied, and was doing well, when fatal pleuritis, apparently from letting the fire go out, ensued. A cook, says Simonet, with enormous fluctuation of the jugulars, dyspnœa, rusty sputa, strong pulse, and cardiac impulse, entered the hospital Beaujon. Hepatization of the left lung, with false membranes of a red colour in the left auricle extending into the ventricle, were discovered after death. In a young mason, who had been brought senseless into the same hos-

pital, with convulsed features, laborious respiration, pulsating jugulars, and precordial dulness, the sigmoid valves of the pulmonary artery were almost wholly obstructed with false membranes; the tendons and those of the mitral valve were red, while the tricuspid was thickened. The redness in endocarditis varies from a scarlet to a violet, and even a brownish hue, generally deeper in the right side of the heart—which Bouillaud ascribes to imbibition, than the left, and most vivid over the valves. Thickening, less frequently softening of the lining membranes, is usual when the disease has been of some weeks standing. Pus is sometimes retained in the centre of a clot, or in interstices of the columnæ carneæ; false membranes, occasionally, on the surface and free margins of the valves. Elliotson once detected excrescences extending nearly to the apex. Polypoid concretions Bouillaud esteems one of the products, or rather concomitants, of endocardiac inflammation. In the second period, the plastic lymph becomes organized; hence fibrinous layers, granular or warty vegetations, numerous or few, globular or flattened, isolated or aggregated, from a pin's head to a pea in size. Warts may be attended with fibro-cartilaginous or bony indurations, curtailing the dimensions and clogging the action of the valves; just as narrowing ensues after inflammation in the outlets of other organs, as the neck of the bladder, pylorus, rectum, junction of the ileum and cœcum, lachrymal, salivary, and biliary ducts. Sometimes the valves are tied down by adhesions, so that their orifices do not close. False membranes line a whole cavity, or they may subsist in spots or specks similar to those seen on the pericardium or cornea. Cartilaginous and bony productions, sometimes flat, sometimes elevated, vary in size from a lentil to a sixpence. A whole set of valves may undergo this conversion, but it is generally confined to fibrinous zones at the orifices of the heart and points of the valves. As the membrane lining the muscular structure is less frequently affected, it would seem to yield grounds for Hope's supposition that the fibrous coat is more liable to disease than the serous. In other respects, the affected valves assume the most varied forms; Bertin has compared them to shells, Bouillaud to stalactites, and relates cases in which they attained the magnitude of an egg. Sometimes they retain more or less mobility; at others, they are rigid, while the orifice occasionally round, occasionally oval, becomes at once insufficient and contracted, not permitting a free outlet for the blood, nor adequately preventing its regurgitation. The degree of narrowing is variable; sometimes the little finger, or even a quill, hardly finding admission; Hope has seen the mitral valve of all sizes, from a quarter of an inch to an inch in its longest diameter.

Endocarditis rarely subsists alone, hence symptoms will be a mean of the cardiac, pleuritic, or pneumonic concomitance. Pericardiac effusion is attended with the indications already described; abnormal sounds, as of the rasp, saw, or bellows, are more or less indicative of valvular concretions and obstruction; but, as these may be old, as well as recent, they do not alone furnish evidence of endocardiac inflammation. Such sounds, in other respects, are audible in proportion to the force and energy of the heart's action, which, in endocarditis, indeed, is visible to the eye and sensible under the hand. Sometimes, as Elliotson remarks, it requires the recumbent posture to render them

perceptible. Violent and tumultuous action of the heart, as Recamier and others observe, may be conjoined with small and frequent pulse, orthopnoea, livor, and cold extremities. Pain, according to Bouillaud, unless with pleurisy or pericarditis, is generally absent; my patients complained less of it than of precordial anguish and oppression. The pulse is very frequent—one hundred and forty or upwards; and contractions at the precordia, it has been observed, are more numerous than at the wrist. The foregoing writer divides endocarditis into three classes or categories: the first comprising congestion, suppuration, and incipient ulceration; the second, thickening, adhesions, membranous or fibrous plates, and vegetations; the third, thickening and hardening of the valves, with or without contraction of the orifices. In a gardener who died of phlebitis, consequent on venesection, inflammation stretched along the veins to the right side of the heart, so that the auricular lining, pulmonary valves, and artery, were of a deep red. In a quarryman, also, whose leg had been crushed by a stone, inflammation extended along the inferior cava which was occupied by a purulent sanies. Ribes relates the case of a lady in whom phlebitis resulted from gangrenous chilblain on the left hand; inflammation, as in the last, extending to the right auricle and ventricle. Thouret relates how a young man was brought into La Charité, with fever, stitch in the side, dulness, and crepitant rattle, in whom, after death, several divisions of the pulmonary veins were filled, some with clotted blood, some with fluid or concrete pus, others with false membranes, inflammation extending to the lining membrane of the auricles. Bouillaud mentions a man in whom pus in the joints and redness of the endocardium were coincident. He also relates the case of a pupil at Alfort, who entered labouring under dyspnoea, violet lips, œdema of the face and extremities. There was voussure at the precordia extending laterally and vertically five inches, with a vibrating thrill when the hand was placed on the chest, and a hollow murmur coincident with superficial rubbing and sawing sounds. The patient died comatose, with violent action of the heart; reddish serum, and a false membrane like the surface of a cow's tongue, were discovered in the pericardium; while the tricuspid and free margins of the aortic valve were thickened. One case is remarkable for the conjunction of endo-pericarditis and pleuro-pneumonia. In another, the lips were violet, with voussure and dulness of the precordia, while the sound of the saw and bellows attended the systole and diastole of the heart. I have seen dyspnoea and intermission of the heart's action in rheumatism with effusion into the knee and elbow-joints, fortunately, without ulterior ill consequences. Several instances of valvular thickening and adhesions, leading to insufficiency, narrowing of the orifices, and hypertrophy, are given, *seriatim*, by Bouillaud. In one, wherein the lips were violet, and the circulation greatly disordered, he ascribes much of the latter to copious coagula in the heart. The jugular veins, when the patient expired forcibly, swelled and fluctuated in several. In one case, the tricuspid, aortic, and bicuspid or mitral valves were all affected; cauliflower excrescences, and a bony ring, hardly admitting the little finger, surrounding the last. It appears, however, from the case of a patient who died of peritoneal perforation, that vegetations so as not to prevent the action of the valves, may not be inconsistent with

tolerable health. In a case attended with valvular induration without narrowing, the heart's action raised the head from the pillow, and shook the left side, while a hissing, sawing sound could be heard at the distance of two feet. The aortic and mitral valves were indurated in a carpenter, and ossification extended down the aorta, as well as to the vessels rising from its cross. Cartilagization and thickening of the tricuspid, mitral, and aortic valves were attended with haggard features and blue lips, while the jugular, as well as the superficial veins of the chest and abdomen were distended and as if varicose. In a case attended with dyspnœa and frequent fainting, the heart, vertically and transversely, was six inches in diameter; Cruveilhier had never seen one so large, while the mitral valve hardly admitted the end of a finger. The case of a military man of rank, with palpitation, anxiety, and cold extremities, in whom the tricuspid was ossified and perforated, is related in the *Journal de Médecine*. In the museum of the *Ecole de médecine*, there is a specimen, by Corvisart, of induration of the tricuspid with narrowing of the orifice; and a similar lesion is adverted to by Morgagni, in his forty-seventh epistle: Elliotson once saw the tricuspid tied down. In an instance by Bertin, in which the heart weighed twelve ounces in place of four, an abnormal communication subsisted between the auricles; the patient before death could not make the slightest exertion without becoming blue. Communications between the right and left side of the heart, which Bouillaud is by no means inclined to consider congenital, with valvular and other lesions, are related by Morgagni, Louis, and Burnett. Simultaneous narrowing and induration of the different valves, are described by Corvisart, Bertin, and Bouillaud. The last only once adverts to the valve of Eustachius. Many of the foregoing examples of valvular disease, however, relate not so much to acute endocarditis as to its results.

Cartilaginous or bony induration, and vegetations of the mitral, tricuspid, and semilunar valves, are all productive, as Corvisart observes, of disordered circulation; and, as Hope remarks, of cough and watery expectoration, hemoptysis with dark or grumous sputa, jugular turgescence, livor, passive hemorrhages, and serous effusions. Congestion of the lungs is equally apt to ensue, when hypertrophy of the right side forwards too large a supply of blood, obstruction to the left preventing its return. Should obstruction, however, subsist on the right side, the lungs are defrauded of their due quantum, hence a condition which Hope compares to asthma. Elliotson, however, affirms that obstruction to the left is attended with greater difficulty of breathing. The greatest variety, however, subsists in this respect, according to the period of the disease and habit of the individual. Obstacles on either side of the heart, indeed, must produce effects more or less convertible, as the impediment, at whatever point of the circle, must be felt throughout. Extensive venous distention, including jugular induration, is, perhaps, more decidedly consequent on obstruction in the right side than the left; it indicates obstruction, however, much more surely than it does its seat. One of the most striking results of valvular disease is the dyspnœa or rather orthopnœa which commonly attends it; this, with the panting and broken voice, livid lips, and, perhaps, general anasarca, all of which, along with hypertrophic action so violent as to shake the bed, I have too often witnessed, forms a

pitiable and distressing spectacle. It was the remark of one of Bertin's patients, that he suffocated rather than breathed, *étouffait plutôt qu'il ne respirait*. It is fortunate in these and similar cases, that the exacerbations are interspersed with remissions which procure a delicious relief to the tortured sufferer, and buoy him up with prospects of recovery. Hope's observation, that valvular contraction, short of hypertrophy or dilatation, does not necessarily produce formidable symptoms, is of great therapeutic value, as shewing the importance of keeping the circulation tranquil. The pulse is often small and sparing, perchance irregular and intermittent, while the heart's contractions are violent and extended. It is harder when narrowing of the mitral, less so when narrowing of the aortic valve, is coincident with hypertrophy of the left ventricle. Patients do not complain so much of pain as of dyspnœa, weariness, and general restlessness; bemoaning their hapless lot and the impotence of medicine. There is sometimes, however, a lacerating sensation across the precordia shooting down the left arm, which Hope ascribes to inelasticity of the indurated or ossified valves, but which I would refer to a nervous source. Apoplectic and paralytic attacks are among the results of cardiac disease; narrowing of the aortic orifice, however, lessens or averts the shock otherwise consequent on contraction of the hypertrophied ventricle. Hope affirms that serous cerebral effusion or venous congestion, not unfrequently precedes the fatal close. In one of his cases, the patient, after a sudden shriek, fell into perfect coma. The strength sometimes holds out wonderfully, while at others, death ensues with little warning. I have known anasarca to disappear with such diminution of dyspnœa and general distress as to hold out hopes of recovery, when, all at once, perhaps after some trivial indiscretion, the bad symptoms would return and the patient expire. In young persons, in whom I have had occasion to witness the severest and most fatal attacks, œdema is more infrequent. The contemplation of one far advanced in cardiac disease is full of painful interest: the prolonged agony, heaving breath, and interrupted accent—the alternate longing for life and wish to die, might inspire the most apathetic with sympathy.

Laennec's theory, that the second sound of the heart was produced by auricular contraction, in place of ventricular expansion, being now exploded, has caused some of his explanations to be superseded. In other respects, he was a most faithful observer; and his facts may be readily explained on the theory of the sounds and motions of the heart proceeding from alternato contraction and expansion of the ventricles, as on that of Rouanet, who refers them all to closing or flapping of the auricular, ventricular, and semilunar valves. Succeeding stethoscopists still follow Laennec in seeking over the sternum for affections of the right side, and to the left of this bone for those of left. We also owe to him the interesting fact, that when one side of the heart is affected, for instance the left, we shall best discover the natural tic-tac of the right side by listening on that side—Recamier advises the epigastrium; and, conversely, when the right side only is affected, the natural sound of the left, by placing the stethoscope to the left of the usual spot, inasmuch, as near the precordia, the abnormal sounds are apt to mask the natural. So long ago as 1792, Corvisart remarked, that the fibrous structure of the left auriculo-ventricular

orifice was much more frequently affected than that of the right. He mentions a smith who had discharge of blood from the nostrils and by stool; and which he referred to venous plethora, induced by cardiac disease, as indicated by orthopnoea, palpitations, and irregular pulse. He likewise described a peculiar vibration, *bruissement difficile à décrire*, felt by the hand on the precordia; compared by Laennec to the purring of cats, *fremissement cataire*, produced by the passage of blood through a narrowed orifice. It attends the systole or diastole; and, in the former, may arise from regurgitation through the insufficient mitral or tricuspid valve, or the impeded passage of blood through the sigmoid valves; and, in the latter, though less frequently, owing, as Hope conceives, to the inferior strength of the diastolic current, from impeded passage of blood from the auricles to the ventricles or from regurgitation through the sigmoid valves of the aorta or pulmonary artery. The purring tremor, according to Bouillaud, is more especially connected with narrowing of the aortic valves; and will, of course, be attendant on the current, whether direct or regurgitant. As this is not constant, the diagnosis will depend on its supposed proximity to the affected valve: an uncertain criterion, however, inasmuch as the semilunar and mitral valves, on the left side, are immediately contiguous. In other respects, the purring tremor may be felt at the wrist, and, indeed, in all the arteries. The bellows' sound is not so certainly indicative of disease as the preceding; but it may be observed of this, as of all abnormal sounds, that they are valuable, as tests, in proportion to their number, intensity, and permanency. Hysteria, chlorosis, and excessive loss of blood, sometimes occasion the bellows' sound; and Hope considers it an attendant on hypertrophy, with dilatation and pericarditis. Raciborski mentions a girl of twenty displaying waxy features, dyspnoea, bellows' sound, precordial dulness, and swelling about the ankles, which he looked upon as an example of organic disease, till Bouillaud, on being consulted, shewed that the case was one of chlorosis. Here, subsidence of nervous excitement, as well as cessation of reaction from loss of blood, will cause the bellows' murmur, also, the *bruit de diable*, a sort of musical murmur in the arteries, to disappear. It is not, generally known, what from undue mental emotion, excessive excitement, and sedentary pursuits, that palpitation, dyspnoea, and other functional derangement, may ensue in the most robust. Should the patient become alarmed, and his attention turned to the organ, its violent action may be such as to deceive more than the unwary. The bellows' murmur, like the purring tremor, more frequently attends affections of the aortic valves, indeed, all cases of narrowing and valvular inadequacy. Laennec's supposition of spasm no longer suffices to account for these sounds. Corrigan conceives, that they are produced by narrowing of a cardiac orifice, leading to peculiarities in the motion of the blood, with vibrations and diminished tension in the tubes or cavities through which it moves. The bellows' sound may be produced at will, as Bouillaud and he remark, by pressure on an artery, as the femoral: it is also heard in varicose aneurism, and over the placenta after the fourth or fifth month. Williams says, the conditions necessary to the *bruit de soufflet*, is resistance to the blood, when moving with a certain force, a view more or less analogous to that of Bertin and others. A musical modification of the bellows'

murmur, Hope thinks, may arise from pressure of the heart during its systole on the bronchial tubes. Sounds of the rasp, file, and saw, are analogous to each other; and may be heard during the systole, diastole, or both. They are more rugged—a kind of cruck, cruck, as an intelligent Frenchwoman termed it, in describing her case to me, than the bellows' sound; and indicate an unequal surface in the aperture, as when the latter is converted into bone or cartilage. When the abnormal murmur is single, it masks but one of the corresponding sounds of the viscus; if double, both. Bouillaud affirms, that only once in more than one hundred cases of narrowing of the orifices, with induration of the valves, did he find the bellows' sound, or that of the rasp or saw, absent; and even then had he used more care, he adds, it would have been detected likewise. Bigot and Dechambre, however, assert, that in numerous instances, when valvular narrowing or insufficiency was demonstrable after death, there was nothing of the kind. In some subjects, the abnormal sound is short and abrupt; in others, slow and prolonged: in a few cases, it may be heard without putting the ear to the chest; while, in others, it is dull and not to be perceived without close attention. Murmurs are more hollow, according to Hope, when deep-seated, as in the auriculo-ventricular orifices; hissing or whizzing when superficial, as in the aortic, and, more especially, the pulmonary; and, in the latter case, about the middle of the sternum, on a level or so with the third rib. The differential diagnosis, however, is any thing but clear. Valvular disease, as regards the fact, is, in general, easy of detection; as regards the seat, approximatively so. Synchronism of a morbid sound, with the first or second action of the heart, leaves it to be determined whether the abnormal murmur attend the direct or retrograde current of the blood. Thus, the bellows' sound isochronous with the heart's systole, may arise from inadequacy of the mitral or tricuspid valve, narrowing of the aortic or pulmonary, or, lastly, both may combine. The determination of valvular narrowing, observes Piorry, has given rise to researches which have not thrown much light on the question; in fact, the distinctions which some pretend to lay down, would, if correct, be hardly available at the bed-side, where concomitant morbid changes necessarily divide the practitioner's attention. Bouillaud admits, that isochronism, whether of the bellows, rasping, or sawing sounds, with the ventricular systole or diastole, signifies almost nothing; they may, in fact, subsist with both. In fine, we may coincide with Andral, that signs derived from auscultation are of importance just so far as they are placed in connexion with the period and manner of their appearance, as well as with the morbid phenomena which precede or accompany them.

The valvular structure of the right heart, notwithstanding a few examples to the contrary, is so infrequently affected, that the occurrence may fairly be esteemed exceptional. Bichat, however, clearly erred when he asserted, that the tricuspid and pulmonary valves were never implicated. Should the tricuspid be engaged, we apply the stethoscope, without its plug, about the middle of the sternum; for narrowing, insufficiency, or ossification of the mitral valve, on the other hand, we place it to the left of the sternum, between the third and fourth ribs. Should the left auriculo-ventricular orifice, for example, be alone affected, the sound of bellows, rasp, saw, or file, will obviously be

synchronous with the second action of the heart; but, if there should be regurgitation in the same valve, the abnormal sound will accompany the systole, as well as the diastole. The action of the heart, as before remarked, may be violent, although the pulse be small, irregular, and intermittent, the vital fluid not finding its way properly from the auricle to the ventricle, thence to the aorta. Narrowing of the aortic orifice has not the same effect on the pulse. We are warned by Hope, not to confound a murmur along the ascending aorta, extending to the valves, with disease of the latter; but he admits, that it is not easy to know which is the seat. Littré, however, is of opinion, that aortic insufficiency gives rise to a bellows' murmur extending along the course of the vessel. Dilatation of the aorta above the valves, of which Dr. Corrigan was so good as to communicate an interesting example, may occasion the bellows' sound, irrespective of all valvular lesion. When, from thickening, induration, erosion, rupture, or adhesion, aortic insufficiency ensues, the abnormal sound is heard during the second beat, perchance also during the first; while the ventricle, from its efforts to get rid of the regurgitant blood, as well as to overcome the narrowing, should this coexist, becomes gradually enlarged. The discovery of aortic insufficiency, claimed by Corrigan, denied by Bouillaud, has been made the subject of a thesis by Guyot, and, subsequently, of a paper, by Littré in the *Répertoire des sciences médicales*. On whichever side the abnormal sounds and purring vibration attain their maximum, the presumption is, that there the heart is affected. As in the immense majority of instances, the left side only is so, it is there we shall mostly discover the sounds in question; consequently, the principal difficulty in the differential diagnosis, and one, in fact, not to be got over, is to determine when the mitral, and when the aortic valve—as regards the left side, and when the tricuspid, when the pulmonary—as respects the right, respectively, are seats of disease. As to the diagnosis between partial valvular adhesion, without much narrowing, induration and narrowing, any more than between narrowing with or without vegetations, there is nothing known. Narrowing of the pulmonary orifice is very rare; nor have we any certain means of detecting it during life. We cannot, as Corvisart remarks, feel the pulse of the pulmonary artery, and the aortic system perchance remains unaffected. There will probably be fluctuation in the jugulars: the bellows' sound, and purring thrill, with more or less evidence of ventricular hypertrophy, will be perceptible on the right side. A case by Burnett, of insufficiency of the pulmonary valves, wherein the orifice was partly closed by a yellow membrane, in an anasarcons girl, is recorded in the *Journal hebdomadaire*. There were points of ossification in the tricuspid, with hypertrophy of the right ventricle; and, during life, the bellows' sound was extensively diffused over the chest. From the foregoing, it is evident, that the systole and diastole of the heart, severally, may be accompanied with two sounds or murmurs—the one direct, the other regurgitant: that thus the ventricular systole and first sound may be attended with, or marked by, an abnormal one, arising from the direct current through the diseased aortic or pulmonic orifice, or from regurgitation through the mitral or tricuspid; and that the ventricular diastole, and second sound, may, likewise, be attended with an abnormal murmur, proceeding from direct transmission of

blood through the mitral or tricuspid valve, or from regurgitation through the aortic or pulmonic orifice.

There can be no doubt, that cold is productive of peri and endocarditis, as it is of rheumatism and other inflammations. Pericarditis, as well as carditis, may be traumatic. Renauldin mentions a man in whose pericardium two litres of serum, and a needle, which the patient had introduced, were discovered. Ferrus and Olivier describe the case of a lunatic who had thrust a stylet into his heart, with the production of pericarditis and false membranes. One of Bouillaud's pupils, M. Declaux, induced endocarditis and pericarditis in rabbits, by passing needles through their hearts. There is a close connexion, whether as sequence or concomitance, between cardiac inflammation and rheumatism: I have enjoyed repeated opportunities of witnessing the supervention or concurrence of the former in acute arthritis. Sometimes, as Elliotson remarks, cardiac inflammation may be simultaneous with rheumatism; or it may not appear till the latter subsists for some time, or is even on the decline. The French, this writer affirms, do not seem aware of the connexion; but Corvisart adverted to it long since. In his sixth case of pericarditis, the disease, he says, came on after severe rheumatic pains; and he goes on to ascribe pericardiac adhesions to rheumatic and gouty affections. Pitcairn, Baillie, Wells, and others, were well aware of the fact; and no one insists on it more strenuously than Bouillaud himself, who, however, objects to the term metastasis. Tendency to simultaneous inflammation is ascribed to the fibrous tissues; the dura mater, however, is exempt, and some add the sclerotic of the eye; but, be this as it may, a connexion is certain between the heart and joints. In the list of Corvisart and Bouillaud's cases, I observe the supervention of cardiac inflammation after blows on the precordia, excessive muscular exertion, exposure after sweating, a cold bath by mistake; but most of the subjects appear to have been liable to rheumatism. We seldom, with Broussais, witness pericarditis apart from pleuritis; to which Kreysig adds, inflammation of the anterior, and more especially the posterior mediastinum. Corvisart went so far as to ascribe fatal consequences to adhesion of the pericardium. Indeed, he was so much impressed with the general fatality of cardiac disease, as to prefix, from Virgil, *hæret lateri lethalis arundo*, as motto to his work. Pericarditis become chronic, says Bouillaud, with purulent or sero-sanguinolent effusion and false membranes, will occasion serious disquietude for the fate of the patient.

Bouillaud, advocate as he is for strenuous depletion, *coup sur coup*, in inflammatory attacks in general, is more especially so in the event of cardiac disease. Pericarditis, alone, or combined with endocarditis or pleuro-pneumonia, doubtless, will be benefitted by tartrate of antimony, calomel, and digitalis; but our primary reliance must be placed on blood-letting. Bouillaud lays great stress on early and copious emissions, which he calls *la grande methode des emissions sanguines*, so as to strangle the disease, as it were, before effusion, false membranes, purulent deposits, and coagulation of blood in the heart, either entailing speedy dissolution or chronic disease, have time to ensue. The loss of a few hours at first may prove irretrievable. He would bleed from the arm to syncope—say three or four detractions in the space of three, four, or five days, to the amount of twelve, or sixteen ounces

each, and apply from twenty to forty leeches. Should the advance of the disease, nature of the attack, or constitution of the patient, prevent general bleeding, he would confine himself to free leeching or cupping, with purgatives and cooling diluents. Nauseating doses of antimony and digitalis, though useful, are not to be carried so far, particularly in the event of effusion or false membranes, as unduly to lessen the heart's action. Latham advocates mercury pushed to salivation, with a view to the absorption of the effused products: the mineral is even useful, as Hope remarks, though ptyalism should not be induced. Local counterirritation, particularly in the event of chronic disease, along with squills, digitalis, and the compound powder of jalap, internally, will be additionally serviceable; in the event of hydro-pericardium, paracentesis, or tapping even, though very unjustifiably, has been resorted to. Relapses, from exposure or other imprudence, particularly in rheumatic complications, are too common. Here, as Copland observes, the practitioner must not be deterred from bleeding, merely by the smallness of the pulse, or induced to carry it too far from persistence of the buffy coat. In case of chronic endocardiac disease, it is necessary to pay the greatest attention to diet and regimen, and to avoid excitement of mind and body; all exertion, every thing, in fine, that has any tendency to renew or unduly excite the morbid action of the heart. An important item is to allay the severity, and lessen the frequency of the paroxysms; and the earlier the disease, the more facility shall we find in realizing this. Each recurrence of these, as Hope observes, gives the patient much ground to retrace: a single one may undo the progress of a year, and death may follow the indiscretion of a day. Ether, musk, assafoetida, camphor, valerian, and ammonia, are all employed to resolve the paroxysm; but, as the disease advances, these, in every sense, become very drugs, and the patient swallows the nauseous, and, too often, inefficient draught, with reluctance, or spurns it with disgust. Largely-diluted brandy or gin is among the things sometimes productive of grateful relief. I have found the shower-bath of great service; but it must be employed with caution. Undue purging is hurtful, particularly in phthisical cases. Passive serous effusions, anasarca, and ascites, greatly aggravate the patient's sufferings, and often increase orthopnoea to a distressing extent. I have, however, ventured to remove them, even when they subsisted to a frightful degree, by means of claterium, beginning with very small doses rubbed up with a little capsicum and the sulphate of potash or cream of tartar. The common useful compound of blue pill, squills, and digitalis, to be efficient, requires to be washed down with infusion and tincture of digitalis. Prussic acid I have never employed but with the precaution which this redoubtable remedy should inspire. In other respects, when dropsical effusion has been dissipated, the patient will often experience considerable respite. Sooner or later, however, it returns, again to be dispersed, till it at length, with the disease which gave it birth, forces the baffled practitioner to retire. It is, at all times, difficult to induce the patient to observe requisite care, and practise sufficient self-denial; and I have, again and again, found it necessary to write down the precise quantity and quality of food, the hours of rest, and the amount of exercise. Epicures, indeed, are hardly to be restrained, even by the most stringent prohibitions; and I have known

those who may be said to have incurred death rather than forego the gratification of appetite. Alternate action and relaxation induce some repose; but, though we cannot procure the heart absolute rest, we can give it less to do; we can often keep the disease in abeyance for years, and perhaps avoid those hideous complications and after results that make life a burthen, and render medical skill a mockery. Hysterical, chlorotic, and nervous affections, often present palpitations, dyspnoea, and the bellows' murmur. Here we are to see whether the symptoms be continuous, as, if otherwise, the disease is simulated. The criterion, however, is not infallible, since symptoms of morbus cordis, itself, remit; and abnormal sounds, unless when cardiac disease is far advanced, are not invariably discoverable. Too often, however, affections of the heart are alleged when nothing of the kind subsists, at other times, mistaken for very different complaints or owing to apathy or negligence, perhaps, wholly overlooked.

Of eighteen subjects of acute pericarditis, often complicated, treated by Bouillaud, six died; of these, three had not been bled as he recommended, and of the remainder, one had tetanus, and two violent pleuro-pneumonia, with erysipelas of the face. In the first of these cases, a girl who had lain in at the Maternité, there was precordial dulness about three inches and a half in each direction, with dragging pain at the end of the sternum, while the heart's impulse was hardly perceptible. The treatment lasted a fortnight, and consisted in venesection with leeches to the precordia and affected joints, diluents, low diet, and pills composed of the gummy extract of opium and Dover's powder. In the next case, that of a servant-boy, there were precordial prominence, and dulness six inches transversely, and four and a half vertically; also, a rubbing sound like that produced by parchment isochronous with the motions of the heart. In the supine posture, the heart's action could barely be felt. In an instance related by Raciborski, there were a cracked-jar sound, perhaps from a dilated bronchus under one clavicle, dulness, dilatation of the left intercostal spaces, with respiratory vibration and posterior egophony; also, precordial prominence and dulness, and a creaking, crackling sound towards the point of the heart; in fine, all the signs of pericarditis, with plenrisy to the left. One of Bouillaud's patients became so low as to necessitate the exhibition of Malaga wine, and sinapisms to the calves of the legs. In another, the bellows' murmur terminated in a hissing like the chirp of a bird. A child, a patient of M. Baudelocque, complained that his heart was tearing out of him. In the case of a juggler, endo-pericarditis did not ensue till after six several attacks of articular rheumatism. Repeated general and local depletions, with blisters, sufficed to cure, but it was six weeks before the man recovered. Bouillaud's cases of endocarditis, pure or mixed, are not less interesting. In one of these, a student in pharmacy was seized with violent rheumatism in the knees, feet, shoulders, elbows, and hands, with copious perspiration. Thirty ounces in two bleedings were taken away with some relief; but a chill having ensued, the patient began to complain of precordial pain, attended with strong action of the heart, and a bellows' murmur like the sound made by blowing out a taper. Cupping, bleeding from the arm, with low diet, and digitalis internally, were ordered, eventually with recovery. A

woman of twenty-three was seized with endocarditis, as manifested by bellows' murmur, hot surface, hard, quick, full pulse, and violent precordial pulsation. A humming noise, *bruit de diable*, probably from copious depletion, subsisted over the carotids. Crural phlebitis ensued, and the patient had to take seltzer water with ice, internally, to allay vomiting. Depletion, however, and blisters sprinkled with digitalis, to the precordia, compassed a cure. A woman who had relapsed after recovery from endocarditis, returned in ten weeks, with a vibrating, sawing murmur at the precordia, three, then four sounds, masking the normal rythm. Low diet, the hydriodate of potash, digitalis internally, and blisters sprinkled with the same, so improved her situation that when she remained quiet she had no complaint. She came afresh, however, after the lapse of a fortnight, with acute rheumatism and effusion into the right pleura. Her condition, desperate as it appeared, was so ameliorated by small local and general bleedings, with blisters to the precordia, as to leave her well as when she went out the second time. The bellows' sound still remained, there were three beats and three noises, while an argentine or silver tinkling was conveyed from the enormously hypertrophied heart to the ear. Two years after, she was unable to exert herself without oppression and violent palpitation, shewing, as Bouillaud observes, that when rheumatismal endocarditis is overlooked, as he asserts with, I fear, too much justice, it almost invariably is, the ordinary results are organic lesions, more especially valvular induration and hypertrophy of the heart. A boy, after acute rheumatism followed by hypertrophy and valvular induration, was found to have a violent treble action in the heart, thus, tic, tac, tac, with double bellows' sound. The pulse was small with frequent epistaxis, and the least exertion induced palpitations and suffocating dyspnœa; venesection with digitalis, blisters, regimen, and rest, however, procured considerable relief. A girl, after repeated articular rheumatism, became subject to palpitation, with epistaxis, and could not be got up stairs without panting. The sound of the saw and bellows was heard in the precordia, while the heart's action raised the hand. Copious bleeding, while it removed the last rheumatic attack, relieved the palpitations, but the bellows' murmur persisted, and valvular induration and hypertrophy, it is to be apprehended, will increase.

II—HYPERTROPHY OF THE HEART.

It will be obvious from the foregoing, how frequently enlargement of the heart is consequent, if not immediately, at least remotely, on inflammation of the lining or investing membrane. Hope, indeed, admits that pericardiac adhesions are a common source. Hypertrophy with dilatation, or excentric hypertrophy, is the most frequent form, and, in fact, the generic disease; simple hypertrophy, however, without enlargement or diminution of the cavities, and hypertrophy with diminution of the cavities—centripetal or concentric hypertrophy, are also described. This last form, which is admitted on all hands to be excessively rare, Cruveilhier thinks is illusory, having with Testa witnessed contact of the parietes in animals and others who died of

violence, the viscus being surprised, as it were, in its full contractile power. Simple hypertrophy is infrequent as the last, and Andral looks upon it merely as the commencement of hypertrophy with dilatation. We owe these two divisions, which are little else than pathological refinements, to Bertin. Bouillaud has rarely witnessed either, and says that for one instance of simple hypertrophy there are twenty of hypertrophy with dilatation. Burns, however, describes cardiac enlargement, the cavities retaining their ordinary dimensions. When hypertrophy, according to Cruveilhier, does not exceed certain limits; when it is exempt from any great degree of dilatation of the cavities or narrowing of the orifices, it is hardly to be esteemed a disease. In fact, the heart is naturally larger in some than others, and, where individuals are vigorous and well fed, may attain considerable dimensions without interfering with its functions. Excentric hypertrophy, or hypertrophy with dilatation, is exceedingly common. Times without number have I witnessed it in the dead subject, and detected it in the living. In some cases, the muscular parieties become deeper in colour as well as more dense in structure, while in others, they may be softer than natural. The clots and other contents of the heart, as Vesalius observes, should be rejected before weighing; but even with this precaution, the weight of five pounds, signalized by Lieutaud, is truly enormous, and justifies the appellation of *cor bovinum*. Lobstein mentions a heart weighing two pounds; and one examined in the Hôtel Dieu, in 1834, was upwards of nine inches in length, and fifteen in circumference. In extreme cases, says Bouillaud, the heart may attain thrice its normal weight and size. In nine instances which he cites, it varied from twelve to twenty-two ounces; in one, equalled the head of a full-grown fetus, and occupied three-fourths of the thoracic cavity. Pathologists differ as to the normal weight; from eight to ten ounces are the estimate in which Lobstein, Meckel, and Sanson join. Bizot, in an elaborate memoir, states that the heart goes on increasing, though not so rapidly after thirty, to advanced age. This viscus, as might be expected, is relatively less in women than men. Cardiac enlargement is often associated with chronic inflammation of the investing or lining membranes; also, valvular narrowing and induration. As hypertrophy may subsist without dilatation, so dilatation may subsist without hypertrophy: both are alike excessively rare. This last is the passive aneurism of Corvisart, and may be general or local, in which last case, Bouillaud would apply the term false consecutive aneurism. He mentions two instances, in one of which the pulmonary portion of the right auricle was dilated; in the other, the left ventricle, the parieties of which were no thicker than those of the right. Henry de Clermont, in the *Bulletins de la Faculté*, describes a heart, the right cavities of which were dilated and attenuated to that degree that the auricle and ventricle were converted into a transparent membrane. Burns draws a necessary distinction between dilatation from disease, and mere cadaveric sanguineous distention. Senac, indeed, would ascribe an influence to the latter, during the life of the individual. In certain cases of anemia, as well as in pericardiac effusion, the heart may be unduly lessened. Andral found this viscus in a child of three so imbedded in tubercles, that a few muscular fibres of the right ventricle were alone discernible. Laennec, who does not

osteen atrophy a disease, saw the heart in a person of fifty-five, the previous subject of hypertrophy, like a shrivelled apple; and Chavasse, in his *Sammlungen auserlesenes Abhandlungen*, tells of a man of sixty-four, in whom it was not bigger than in a new-born child. In seven cases of atrophy by Bouillaud, the minimum weight was four ounces, two drachms; the parietes, however, like collapsed bladder or stomach, had gained in thickness.

Concentric hypertrophy, according to this writer, is more common in the right ventricle than the left; but the cases are so rare as hardly to yield basis for a general rule. Few persons, observes Laennec, have perfectly proportioned hearts; and it is easy to mistake congenital deficiency for disease. Universal hypertrophy is much less frequent than hypertrophy of a part; when it ensues, however, the different cavities extend, the viscus assumes a more horizontal position, while, from being pointed, it becomes globular. The columnæ carneæ display hypertrophy in connexion with their respective ventricles; very rarely, as Cruveilhier observes, otherwise. Here the apex, unless in the event of hypertrophy of the right, is formed of the left ventricle: should both be enlarged, which is not uncommon, the point is obliterated. The generally received opinion, till subverted by Louis in his *Leçons Orales*, that he had met hypertrophy of the right ventricle twenty-nine times for twenty of the left, was, that hypertrophy of the left ventricle was most frequent; still, however, as the latter has to bear the onus of the general circulation, we may look for it therein to the greatest extent. Usually about half an inch—hypertrophied, however, it may be three or four times as thick. The increase is usually in the natural direction or towards the base; at other times, as Hope remarks, the base, septum, apex, valves, or fleshy columns, severally or separately, may be enlarged. Hypertrophy of the auricles, like that of the ventricles, is almost always attended with dilatation, and rarely, indeed, subsists without corresponding ventricular enlargement. As the muscoli pectinati, or fasciculi, go for so large a share in the structure of the auricles, the right particularly, it renders hypertrophy of the latter, according to Hope, more frequent and conspicuous. The auricular appendages, also, are liable to enlargement. As regards dilatation, which, in other respects, is rare, it is considered most frequent on the right side, while the muscular structure is softened, so that the heart resembles an empty bag, or, as Hunter observes, the skin of a glove.

The signs and symptoms of hypertrophy are local and general. If the chest be stripped, the eye, in many cases, will discern the violent action of the heart; while, if the hand be imposed, the organ, to use the language of Corvisart, as if irritated by the pressure, seems to act with double violence. I have seen cases in which the shock appeared to extend itself to the whole person, and, if the patient were lying, to the bed and bed-clothes. Sometimes it is the point, at others, the body of the viscus which communicates the impulse. The diastole, also, or back stroke, as Hope terms it, is likewise sudden and forcible. Bouillaud mentions a case in which, when the ear was laid along the chest, the blow was like that of the fist. Prominence or voussure, when present, is obvious both to the eye and hand, as well as upon mensuration. According to Piorry, it is more to the left than that which subsists in hydro-pericardium. It may be simulated, as Senac

has observed, and as I find in a case under my observation, by spinal deviation, congenital or acquired, thrusting out the ribs. Percussion, whether mediate or immediate, is obviously useful in detecting the extent of the enlargement; it must not be forgotten, however, that the liver sometimes encroaches on the epigastrium. Hypertrophy with dilatation induces extended dulness in the precordial region; in dilatation to the right, the dulness is under the two upper portions of the sternum, whereas in hydro-pericardium it subsists on both sides. When we apply the ear or the stethoscope in hypertrophy with dilatation, the first sound is dull and prolonged; and in the event of valvular disease, is associated with the bellows' or other abnormal murmurs. In extreme cases, indeed, the natural sounds, one or both, according to the extent, are either greatly diminished or not heard at all. Sometimes a metallic clink, which has been ascribed to the heart's impulse on the chest, is heard; and sometimes, probably from resonance of the distended stomach, the contractions are audible at a very short distance. The impulse, in general, is powerfully increased; but, in aged persons, even in the event of hypertrophy, it is almost always diminished. When the heart is moderately enlarged with considerable dilatation, the sounds, far from being weaker, are more audible than usual, and may be heard not only in the precordia, but over the whole thorax, anteriorly and posteriorly. In dilatation with attenuation, a rare occurrence, the sounds are still more sonorous, and the action of the heart still less perceptible. Dilatation of the right auricle is said to extend very high, even to the neck. In hypertrophy of the right ventricle, we are to look for contractions towards the lower part of the sternum; and in this case, it is said, we have isochronous pulsation of the jugular vein. In other respects, this may ensue from impediments to the return of venous blood to the heart—as pressure, for example, on the cava, narrowing of the right orifice, and, probably, causes as yet unknown. In hypertrophy of the left ventricle, the contractions mainly occur under the cartilages of the fifth, sixth, seventh, and eighth ribs. The general signs and symptoms vary with the extent or chronicity of the disease. In hypertrophy with dilatation, apart from valvular disease, the pulse, except in aged persons, is usually strong. With the too frequent complication in question, it becomes intermittent and irregular: I have known it, probably from double action of the left ventricle, dicrotal. There is more or less tendency to cerebral and pulmonary apoplexy, as marked by dyspnoea, pain in the head and chest, with red injected countenance; and were it not for concurrent narrowing of the aortic orifice, the brain, as before mentioned, would be oftener affected. Pulmonary congestion may ensue, though the left ventricle alone be implicated. Hypertrophy of the right ventricle, indeed, may reasonably be supposed to exercise a direct influence in the production of active pulmonary hemorrhage; at the same time, narrowing of the left auriculo-ventricular orifice, by hindering the proper evacuation of the contents of the auricle, must act back upon the lung, and tend to the production of serous congestion and passive hemorrhage. Persons labouring under the advanced disease, are subject to evening exacerbations, which compel the erect posture and recourse to the open air for relief. Pulsation of the jugulars, orthopnoea, livor of the face and lips, and oedema, partial or

general, are often not so much the results of hypertrophy as of concurrent obstacles in the circulation. Malpighi, Ramazzini, and Cabanis, died of cerebral affections, the result of diseased hearts. Richerand and Brichteau have drawn further attention to the subject; but Rochoux combats this view of the matter, by saying, that as cerebral hemorrhage, whether by rupture or exhalation, is almost always preceded by softening, it could have no connexion with hypertrophy of the left ventricle. I do not think this uniformity so invariable as he alleges; and, at any rate, the continued molimen of the blood itself, a supposition in which I am fortified by Legallois, may have some share in the production of softening. Hope, indeed, is of opinion with Richerand and Bertin, that hypertrophy constitutes a stronger predisposition to apoplexy than the apoplectic constitution itself, eight or nine rapidly fatal cases, and numerous instances of palsy from this cause, having occurred to him within a few years. One, among others, wherein narrowing of the aortic orifice served to intercept this fatal tendency, was furnished in the person of a man who lived to the age of eighty without any notable functional derangement, yet in whom the left ventricle was an inch thick, while the aortic and mitral orifices were each encircled by a ring of bone. In other respects, ossification, and consequent fragility of the arteries as incident to old age, will render them more easily ruptured. Pulmonary hemorrhage from hypertrophy of the right ventricle, the smaller blood-vessels not being subject to cretaceous degeneration, as in the brain, is not so frequent as cerebral, from that of the left. Bouillaud gives three cases; but, in two of them, the left ventricle was also enlarged. Not only the lungs and brain, but the mucous membrane of the stomach, nostrils, and intestines, are liable to hemorrhage, to which the congested state of the liver, from the same cause, will lend a further incentive. In a case described by Bouillaud, the subject laboured under simple hypertrophy, with powerful action of the heart and dull sound. Suddenly, after livor, dyspnoea, and stupor, the man fell dead. On examination, the longitudinal sinus and both ventricles, the septum being torn, were gorged with blood. In another case of hypertrophy with dilatation, an aneurismal tumour, pressing on the superior cava, gorged the veins above; the subject was seized with coma and stertor, the result of copious serous effusion on the brain. Bertin relates an instance of the very rapid supervention of hypertrophy with dilatation after articular rheumatism. Several others by this author and Bouillaud, of serous and sanguineous effusion, with or without softening of the brain, consequent on hypertrophy of the left ventricle, columnæ carneæ, and septum, often with narrowing of the left auriculo-ventricular orifice, and, perhaps, ossification of the aorta, are on record. In one by Legallois, hypertrophy of the left ventricle preceded cerebral apoplexy and softening.

Hypertrophy and dilatation, since they almost invariably concur, must obviously be produced by the same causes. We may have hypertrophy without dilatation, and dilatation without hypertrophy; while, again, one portion of the heart may be dilated and another hypertrophied, from causes which conjecture does not always supply. Bouillaud, as well as Burns and Kreysig, divides hypertrophy into primitive and consecutive, the former embracing inflammation, the latter not.

Thus, of thirty-three cases of chronic pericarditis and endocarditis by the first, hypertrophy was present in every one. I should say, however, that the enlargement sprung rather from the effects—the induration, thickening, and narrowing of the cardiac orifices, than from the inflammation itself, which, in the great majority of instances, has ceased, while hypertrophy is going on. The great frequency of inflammation, as a morbid point of departure, has only of late been adequately insisted on. Legroux, indeed, in an elaborate memoir in the *Journal de l'expérience, sur l'inflammation comme cause des affections organiques du cœur*, would ascribe hypertrophy, in many cases, to inflammation of the fleshy structure of the heart. In other respects, Beau considers pericardiac adhesion as even more influential than cardiac disease. Age, which atrophies the muscular system in general, has no such effect on the heart, almost necessarily greatly developed after pulsating four-score years. The calling, says Legroux, is not so much productive of the disorder as the circumstances in which it is exercised; less in cheerful, well lighted, airy situations, than those which are cold, damp, and dreary; in the midst of ease and plenty, than in want and gloom. The bent position of taylors, according to Corvisart, of seamstresses, according to Legroux, and of literary persons, according to myself, may induce cardiac derangement, and eventually partial hypertrophy. I do not find porters, sailors, or young persons—those, in fine, who are called on for frequent muscular efforts, more liable to morbid hypertrophy than others. In fact, when we consider the tendency of cardiac rheumatismal inflammation, it greatly lessens the range of other alleged causes. Hypertrophy, it seems, is more frequent in some families than others. Lancisi knew cardiac enlargement reproduced through four generations; while Albertini, it is said, saw a woman die of it who had lost five brothers similarly affected. Corvisart, perhaps from his addiction to the study, affirms, with the single exception of phthisis, that cardiac are more frequent than any other organic diseases. He seems to assign too great an influence to moral causes, which, however, are not so inoperative as some have supposed. Who will deny, he says—*qui niera l'immense puissance de ces causes*—of anger, fury, terror, envy, jealousy, despair, sorrow, avarice, ambition, revenge, misfortune, opposition; the infinite shades of so many passions and affections, of which some entail wretchedness, others guilt and destruction—alike the unhappy lot of humanity, and which, not less than the noblest sentiments and most elevated passions, react on the heart and derange its functions. Let those, says this writer, who impugn the fatal influence of the passions, know that the heart has been ruptured in a fit of anger; and that he is not the only one who recognized the increased frequency of its lesions during the horrible periods of the revolution, compared with the ordinary calm of social life. Among causes assigned by Bouillaud and Louis, is congenital or acquired communication between the right and left sides of the heart, whether through the interauricular or interventricular septum. The proximate and most powerful source of hypertrophy is, undoubtedly, a mechanical obstacle to the course of the blood. Once abnormal impediments are superadded to the weight of the vital fluid and friction of the passages, the heart sets up a supplementary action, which, if it continue long enough, leads to increased

nutrition and development. Impediments immediately anterior are, doubtless, most effective, but obstruction, whether anterior or posterior, tends to disease in the long run. In impermanent obstruction, as that occasioned by pneumonia, hypertrophy does not follow; but should there be valvular induration and narrowing, enlargement, unless means be taken to check the circulating mass and direct it to other points, sooner or later must ensue. Primitive disproportion or acquired weakness may be hypothetically assumed to account for one cavity being implicated rather than another, but cannot be proved. Dilatation, it is said, more readily affects the auricles; of the ventricles, the right than the left. In narrowing or insufficiency of the aortic or pulmonic orifice, the ventricle is liable to hypertrophy, inasmuch as it is unable to discharge its contents in one case, while, in the other, it is overwhelmed by regurgitant blood. If the evil stopped here, it were well, but as the left ventricle cannot empty itself, neither can the corresponding auricle, thence engorgement of the lungs. It is equally obvious, that the right ventricle will be similarly impotent to discharge its contents into the lungs, thence engorgement of the right auricle, with general derangement, venous, and, indeed, arterial. Lancisi witnessed hypertrophy of the right ventricle, when the obstruction was so far off as the abdominal aorta. Sometimes the left ventricle is hypertrophied conjointly with narrowing of the mitral valve. Legroux would explain this by inflammation; Elliotson and others by the impediment operating round the circulation; and Copland to increased diastolic efforts on the part of the ventricle. Doubtless, as Bouillaud observes, the heart acts both as a sucking and forcing pump; the energy of the diastole, however, is unquestionably inferior to that of the systole. Mitral narrowing, according to Hope, may lead to both atrophy and flaccidity of the ventricle, the latter not being properly supplied with blood. It is obvious enough, that narrowing or insufficiency, whether of the mitral or tricuspid valves, not forgetting its infrequency in the latter, may act backwards, not only on the respective auricles, but on the ventricles themselves; so that hypertrophy may be induced through the intervention of the general circulation, by obstacles operating before or behind. Bouillaud has noticed hypertrophy of the left auricle rather than of the left ventricle, concurrently with narrowing and induration of the aortic valve. To refer dilatation in one case, hypertrophy in another, to the circumstance of the obstacle subsisting behind or before the affected cavity, is mere matter of unverified conjecture. Cruveilhier maintains an opinion, in which he has been followed by some others—more easy, I should think, to assert than to prove, that valvular disease is frequently as much the result as the cause of hypertrophy. Just as the tendons of muscles of the life of relation enlarge with the muscles to which they are attached, so the little fibrous cords which constitute the tendons of the heart, are developed in the same proportion as the columnæ carneæ; while the auriculo-ventricular or sigmoid valves, forcibly raised and dragged along by the vigorous contraction of the respective auricle or ventricle, grow cartilaginous and bony, curl up sholl-wise, and become incapable of closing the orifices to which they belong.

A notion of the incurability of a complaint is alike bad for patient and practitioner; I agree, however, with Hope and Bouillaud, that hy-

hypertrophy, with dilatation, does not necessarily come under the charge. Yet, it must be admitted, whether let alone or injudiciously treated, more especially when associated with valvular disease, that the tendency is to further aggravation; and that, although many cases may be remedied, others, from their inveteracy or severity, admit of no cure, often of little palliation. As hypertrophy is frequently associated with valvular disease, many of the therapeutic directions have already been discussed. Every exciting or aggravating cause—muscular or respiratory efforts, table excesses, and those of sex, mental emotion, undue physical exposure, should most carefully be avoided. Great attention to cheerfulness, and to promote the general health, will be requisite. White meats, also fish, soups, vegetables, and fruit without alcoholic drinks; passive, then moderate, though prolonged exercise, are expedient. In spring, Kreysig recommends vegetables, in summer milk, in autumn, a grape diet—*Weintraubencur*. Serous effusion will be best combated by mild hydragogue purgatives, as the compound powder of jalap, with squills, digitalis, and a little ginger. Cream of tartar, nitre, sweet spirits of nitre, broom tea, and sometimes infusion of digitalis, are favourite, and not inefficient, popular remedies. Home recommends saline aperients, with a few drops of dilute sulphuric acid, in equal parts of the infusion of roses, and compound infusion of orange peel. Let the young practitioner eschew scarification and lancet punctures; acupuncture or the repeated insertion, here and there, of a sharp, but temperless darning-needle, will give issue, in extreme cases, to much serum. The specific action of digitalis, the opium of the heart, as some call it, Chomel remarks, and most medical men are aware, is far from constant. It may even happen, that the heart's pulsations, unless injurious quantities be given, are no ways affected. I have often, says the writer last named, both in the Hôtel Dieu, and La Charité witnessed patients labouring under hypertrophy, in whom, by regimen and rest alone, the contractions of the heart, a few days after admission, have sunk from eighty, to sixty, fifty, and even forty in the minute. Here, doubtless, he adds, if digitalis, or the syrup of asparagus tops, had been given, the results would have been differently explained. I have found the tartrate of antimony useful, not only in lowering the heart's action, but in controlling immoderate appetite. Counterirritation, by means of blisters, issues, setons, or tartar emetic, proves further useful, and keeps the patient quiet. Bleeding in hypertrophy should be repudiated: it is apt to induce subsequent plethora and reaction; and all that it can accomplish, is better effected by diet and regimen. For all this, venesection, followed by a smart purgative, may be called for in a plethoric subject in the imminence of apoplexy. It will not do, however, to feed patients too low: some are so reduced by protracted disease, as to require succulent regimen, and even alcoholic drinks. The method of Albertini and Valsalva, so much insisted on by Laennec, applicable possibly to aneurism, fails with regard to hypertrophy. Under its employment, says Cruveilhier, I have found oppression to commence or increase, the heart's action to become hurried, the sound of the saw and bellows, with irritability of the heart, to be aggravated, completely justifying the adage, *sanguis frænat nervos*, of the ancients. Speaking of an impressionable subject, the first bleeding, he adds, gave some relief, the second still less, while the third was positively

hurtful; and though repose and low diet had been concurrently employed, the heart seemed to redouble in activity and vigour, while hypertrophy made rapid progress; and, only by a line of conduct almost diametrically opposite, was the health slowly ameliorated. A fellow-student, relates the same judicious writer, spent day and night in the construction of maps, and became liable to palpitation to such an extent, that he could not take a few steps even, without a feeling of suffocation: his heart beat through his clothes, and hemoptysis ensued. After bleeding with temporary advantage, he was advised to addict himself to land surveying; to walk slowly, but not to carry the chain; at the same time, to live on fowl, eggs, milk, fruit, vegetables, and other country fare. In six months he came back, to the narrator's great surprise, free from the palpitations, which never returned. I could describe several instances of severe cardiac derangement with palpitation, owing to over-addiction to sedentary pursuits; and such must be within the recollection of every practitioner. Considering, says Cruveilhier, the copious supply of blood required by muscles in action, compared with those in repose—that they enlarge by exercise, and that the vital fluid cannot be directed to the same extent upon two points at once, it will be obvious how copious a derivation is likely to be effected by walking exercise, so as not to quicken the circulation, combined with a strict regimen both as to quantity and quality. This writer—and I could corroborate his testimony to the letter—by means of very slow walking all day, has repeatedly effected the cure of cases, several of which previously resisted sanguineous depletion, as well as antispasmodics of every description; and, indeed, were esteemed incurable, by practitioners who had not sufficiently reflected on this application of physiology to therapeutics.

III—CYANOSIS, MORBUS CÆRULEUS.

UNLESS as matter of prescription, this disease, so named, being symptomatic of a great variety of cardiac affections, has little right to take its place in the nosological catalogue. Livor of the countenance and extremities has already been noticed in connexion with different maladies of the heart, as also those of the lungs—in fine, whenever the blood is prevented from undergoing the full change, from venous to arterial. I am mainly of the opinion of Ferrus, who esteems cyanosis, not so much a disease apart, as a phenomenon which may exist, to a greater or less extent, united with various pathological conditions, and very different organic lesions. Gintrac, in his thesis, divides it into four species: cyanosis, namely, from persistence of the fetal communication between the pulmonic arterial and general arterial system, as well as between the right and left sides of the heart; cyanosis, from abnormal communication at some advanced period of life; cyanosis, from organic disease of the heart; and cyanosis, from suppression of the menses. Subsequently, he confined it to admixture of venous and arterial blood, from direct communication between the right and left cavities, or the leading vascular trunks. A frequent lesion, whether congenital or acquired, is pervious foramen ovale, generally in connexion

with some impediment in the right ventricle or pulmonary artery. Out of fifty-three cases by Gintrac, twenty-six presented narrowing or obliteration of the mouth of the pulmonary artery; and one, narrowing of the right auriculo-ventricular orifice. There was hypertrophy of the right auricle and ventricle in most; the ventricular septum was often perforate; in some, the ductus arteriosus remained free; in one, both auricles communicated with the right ventricle; in another, the aortic and pulmonary artery arose from the left ventricle; in one, the aorta, after furnishing the cephalic and brachial trunks, disappeared, the pulmonary artery, after receiving the contents of both ventricles, forming the descending aorta; again, the aorta was seen rising from the right ventricle, and the pulmonary artery from the left, the foramen ovale and ductus arteriosus remaining open: in some instances there was but one auricle and one ventricle, and, once, of two superior cava, one terminated in the left auricle. As Corvisart, Louis, and Bouillaud, however, remark, a blue surface may be present, when there is no direct communication between the auricles; while, again, it may be absent, though such communication subsist. Breschet mentions a curious case, in which the left subclavian artery of an infant arose from the pulmonary artery, without discoloration of the limb. Miguel, in the *Archives générales*, mentions a jeweller, whose skin was of a vermillion hue, and who was liable to suffocation and faintishness. He had been bled seventy times, and bore the application of six thousand leeches, dying dropsical in La Charité. The left ventricle was dilated and hypertrophied; while an opening, nearly equal to a half-crown piece, subsisted between the auricles; the mitral valve was ossified and contracted, while the aorta and arteries, generally, had not half their usual caliber. Here, doubtless, arterial blood found its way into the venous circulation, in place of the converse. Vieussens describes a feeble child, with cold extremities and leaden skin, who only lived thirty-six hours. The lungs were gorged, the right ventricle and pulmonary artery dilated in consequence. In some of Gintrac's cases, a considerable period elapsed before the supervention of cyanosis; and, in one, from Sandifort, livor of the nails and fingers only drew attention at the end of the year. Cyanosis is sometimes partial; of which an instance has come to my knowledge in the foot. Blue discoloration of the face and chest, witnessed by Billard in a young lady, as it tinged the linen, could have no connexion with cardiac disease.

Cyanosis is commonly confined to infants, usually short-lived, cold, and feeble, and liable to fits of suffocation on the least effort. Morgagni, Sandifort, Richerand, Corvisart, Baillie, and Standert, mention instances in which the subjects bordered on, or actually attained the period of puberty. Thus, Martin Solon communicated a case to Ferrus, in which the individual, a young man of twenty-two, and greatly addicted to debauchery, had been cyanosed from infancy. If any disorder beyond another, were to claim the denomination of cyanosis, it should be epidemic cholera, in which the individual often becomes of an intense slate blue from head to foot. Marc, Rostan, and Chomel, have described the rapid supervention of livor from terror, sometimes in connexion with suppression of the menses in young women. Prolonged exhibition of the nitrate of silver, in epileptic or other cases, doubtless from decomposition of the salt in the subcutaneous tissue, has led to

superficial discoloration, of which I have witnessed one or two instances. Lelut, in the *Journal hebdomadaire*, mentions similar discoloration in the digestive mucous surfaces. The hue, as Bielt remarks, in no wise implicates the offspring. Nitrate of silver is the foundation of most of the pomades employed to change the colour of the hair; but I saw it stated in the transactions of a French scientific association, that certain substances, the names of which were not declared, taken internally, had the same effect. If the averment prove correct, it would not, perhaps, be more remarkable than the dyeing of bones of living animals, by eating madder. I certainly knew one person, whose hair, from grey was alleged to have become black. Of course the foregoing is to be understood of the growing, not the grown hair. Cyanosis, from organic causes, is incurable. The only thing we can do, is to attend to the general health, and maintain the animal temperature, which has a tendency to be reduced to the level of that of creatures endowed with single hearts. Every thing must be done to avoid paroxysms of suffocation. Bathing the feet, regulating the bowels, with antispasmodics, may prove occasional palliatives. In cyanodermis, from the nitrate of silver, blistering, chlorine baths, and the internal exhibition of the hydriodate of potash, as suggested by Traill, have been tried without avail.

IV—ANGINA PECTORIS, STENOCARDIA.

OF this disease, also termed syncope anginosa, stethopnixis, asthma dolorificum, pnigophobia, syncope angens, and angor cordis, much has been said and little understood. The malady announces itself by acute pain in the precordial region, usually stretching down the left arm, and attended by a feeling of impending dissolution. Patients complain as if fiery darts were shooting through them; or, as if birds of prey had sunk iron claws into their hearts. Pain usually ensues when riding or walking, more especially against the wind; but it may come on while lying or standing still. During the paroxysm all exertion is suspended, while marks of terror and anxiety are depicted in the countenance. It seems we are indebted to Heberden for our first specific notions of the disorder, as one *quo pectus adeo angitur, ut non immerito angina pectoris appellari possit*. Morgagni, however, in one of his epistles, appears to have referred to it; Hoffmann, likewise, in his *Consultationes medicæ*, case forty-nine, describes the patient as labouring under *molestæ circa cordis, scrobiculum rosiones*; also, *pectoris vehementes constrictiones et ineffabiles præcordiorum anxietates*. Rougnon of Besançon, concurrently with Heberden, in a letter to Lorry in 1768, adverts to it, or something similar. The first time I met with it, was in a medical man, labouring under hypertrophy of the heart; and who, towards the close of life, as well by night as by day, was seized with acute, lacerating, and most atrocious pain in the region of the heart, with offshoots darting down the left arm. Each time, he felt as if about to expire. If lying, he had instantly to sit up, and place his hands on the seat of suffering. He had been ill during the night, but recovered so far as to read a little in bed in the morning; when, sud-

denly, a paroxysm ensued, and he was barely able to fix his glassy eyes on me when I arrived a few minutes after, ere he expired. There was no ossification of the coronaries, nor any trace of recent inflammation in the heart or great vessels. A stout man, according to Parr, after confinement for debt, was seized with pain at the lower part of the sternum, extending down the arm and fingers, with great dyspnoea. In the course of six years, the attacks became frequent and violent, chiefly while walking; but they afterwards ensued by night, as well as by day. Laudanum, blisters, and the ammoniacet of copper were unsuccessfully employed. After death, the arch of the aorta, as well as part of the heart, were found enlarged and ossified. A robust sailor, who, according to Blackall, had been subject to rheumatism, became liable, on the least effort, to severe pain in the region of the heart, attended with dreadful anxiety, and a sense of fainting. A fit of an hour's duration was induced by putting on his coat without assistance. The respiration was anxious, but not hurried; the pulse feeble and intermitting. Two or three hours after, however, while using some slight exertion, he fell down and expired. The cartilages of the ribs, and portions of the aorta, were ossified; the latter was thickened and dilated. In another, a rheumatic, narrow-chested person, pain shot down both arms; but, so far from labouring under dyspnoea, he was able to play the basoon to the last. Neither opiates nor other remedies were productive of alleviation; and he fell dead in the street. Here there was ossification of the coronaries. In another, pain also extended to the arms, the left especially; and walking, stooping, or costive discharges, severally, served to reimduce it. Blackall mentions a patient who lay totally insensible, urine flowing, and respiration nearly suspended; in another, notwithstanding persistent trance, the individual retained full possession of his faculties. Lord Clarendon's father, as also the late John Hunter, appear to have died of this complaint. Cases are related by Fothergill, M'Bride, Parry, Hosack, Forbes, Burns, and others; there are, also, numerous contributions by continental writers.

Black, Parry, and Kreysig, would refer angina to ossification of the coronary arteries, which subsisted in four well-marked cases by the first. Neither this nor any other lesion is constant; yet nothing is more common than every species of organic change, without even a suspicion of angina. Kreysig, indeed, has gone so far, when coronary ossification did not subsist, as to refer the disease to a morbid condition of these arteries. Recamier, however, not to dwell on the testimony of Corvisart or Laennec, states, that coronary ossification was not once met with in any of his cases. There is a paper in the Dublin Medical Journal, in which Dr. Corrigan appears to have satisfactorily made out the connexion, in some instances, of inflammation of the lining membrane of the aorta, with paroxysms resembling those of angina. It does not seem probable, however, nor indeed is it urged by this gentleman, that an affection coming on at intervals, during many years, and readily reproduced by different exciting causes, without fever, should be exclusively dependant on endocardiac or aortic inflammation, nor would such view be reconcileable with the morbid anatomy of the disease. Laennec regarded angina as neuralgia of the heart. Angina, says he, in a slight form, is not very infrequent, and may exist in subjects free

from all organic disease of the heart or great vessels; and I have seen some, he adds, who, after experiencing severe, but short attacks, became entirely exempt. He inclines to side with Desportes, in placing its seat in the pneumo-gastric or par vagum; but, justly observes, that neuralgia, of different nerves, may produce similar symptoms; that when the lungs and heart are jointly affected, the pneumo-gastric is at fault; or when the heart, the great sympathetic. In other respects, nerves arising from the brachial plexus, and those from the superficial cervical, whether from sympathy or anastomosis, almost invariably synergize in health and in disease. The same remark extends to the lumbar and sacral plexuses, in the few instances in which pain and torpor extend to the thigh and leg. The neuralgic origin of angina is further espoused by Jurine, Piorry, Jolly, and several others. Gout sometimes simulates angina very closely; indeed, so closely, that no difference is discoverable. A fat plethoric gentleman, of middle age, was seized with excruciating pain in the region of the heart: his pulse and breathing were both greatly reduced, and he was sinking fast. Large doses of opiates, mulled wine internally, warm applications to the precordia, and sinapisms to the extremities, procured relief in a couple of hours; since which, by adopting a more sparing regimen, he has remained exempt. The subjects of angina are generally robust, well-fed persons. Only one of Black's cases displayed the podagric diathesis, but it may subsist in a latent form. Forbes, Ellsner, Stöller, Butter, and more especially Chapman, as in the American Cyclopaedia of Practical Medicine, attach considerable importance to the connexion. The last observes, that supposed cases of angina have turned out unequivocal gout. In 1811, says he, I was required to attend a barrister of slender form and temperate habits, who had been treated for, and presented all that species of distress which characterizes the complaint. He was bled; and, suspecting gout, sinapisms were applied to the feet, with carbonate of ammonia and wine whey, internally. In a few hours, arthritic swelling seized the knee; whereupon, all other uneasiness ceased, and the patient remained free. Another case was that of a corpulent, sluggish lady, in whom the slightest exertion induced violent paroxysms of thoracic uneasiness. These continued, notwithstanding bleeding and cupping between the shoulders, and over the precordia. Stimulating pediluvia, however, with wine whey and the carbonate of ammonia, at last induced podagra; so that from 1811, to 1830, in which fatal dysentery ensued, she remained exempt. In March 1813, says he, I met Dr. James Rush in consultation on the case of a robust, middle-aged gentleman, who had been a martyr to angina for years. After being bled, blisters were applied to the feet, with carbonate of ammonia and wine whey, internally. Next morning he was relieved by a fit of podagra; but, deeming himself well, he rose and placed himself, thinly clad, before the fire. In this position, conversing with a friend, he suddenly exclaimed, that the gout had left his foot, and seized the heart, and in a moment was no more. In another case, in which a gentleman of fifty had long laboured under what was termed angina, Drs. Physick and Chapman determined to treat the disease as irregular misplaced gout, and employed the customary revellents with the remedies before-mentioned. By the third day, the gout became fully fixed, with relief in every other respect, in the elbow-joint; un-

happily, however, he omitted his medicine in the night, and the arthritic swelling having ceased, he insisted on shaving. Scarcely was the razor in his hand, when, complaining of sickness and excruciating pain, he sank lifeless on the floor. A gentleman of Baltimore, originally vigorous, but impaired by free living, complained of constant dyspepsia, thoracic pain running down the left arm, and dyspnœa after exercise or a full meal. Three years after, having received suitable directions, he called to say, that gout had appeared with full restoration of his health. Another case, in a lady, is also described, in which an arthritic attack being induced in the wrist, she recovered. The foregoing treatment, indeed, with bleeding or cupping in plethoric subjects, great temperance, and mental serenity, would seem generally expedient. Issues are advised by Darwin, and M'Bride, while mezereon is recommended by Copland. In one of Blackall's cases, the former seemed to confer permanent benefit. In other respects, passive exercise is preferable to active, and all appreciable exciting causes must be carefully shunned.

V—SYNCOPE, DELIQUIUM.

FAINTING, swooning, and syncope, express not so much derangement, perhaps, as privation of function. Some line of demarcation should be drawn between cases of transient suspension of power over the external senses, and those in which it is protracted for days and weeks. The latter, which are doubtless of a different nature, correspond with what are termed lethargies, trances, and the like. Women, in a condition identical or analogous, have been delivered in this state, of which I have heard of one or two instances. I knew another, in which the subject lapsed into a condition of this kind after her confinement; and could only be roused, and that imperfectly, at long intervals, to take a little food. Fainting is oftenest not complete; the sufferer, by a mental effort, is able to avert the catastrophe, or, perhaps, the cause is not fully adequate to produce it. Instinct prompts the reclining posture, in ordinary cases alone sufficient to ensure recovery. The German *Scheintod*, and the terms *virium defectio*, *συχνοπή*, *ἀποψυχία*, are expressive of the prostration attendant on this condition, commonly so disagreeable; in a few cases, it has been alleged otherwise. It generally ensues slowly; the head reels and swims, the sight becomes dim, the visage pale, the limbs relax, the pulse falters or ceases at the wrist, a cold sweat breaks out, and the sufferer sinks prostrate. Vertigo, as Good observes, may precede fainting, and fainting vertigo. Occasionally there is vomiting. Fainting rarely lasts long: the organs, having rested, resume their play. I have known it, however, to persist a couple of hours; and when one attack succeeds another, apprehensions may be awakened for the safety of the sufferer. Fainting, of itself, is rarely fatal; even in complicated cases the patient resumes his consciousness, but, after a certain period, grows convulsed, and dies. Lipothymia does not lapse into syncope, unless causes productive of the latter be superadded.

I have witnessed fainting the instant after disagreeable intelligence. The tendency, however, to a certain extent, may be repressed or en-

couraged. A circular or gyratory motion, as in a swing, sometimes induces fainting; indeed I saw it to an alarming extent in an individual who, in a frolic, had consented to be whirled on a capstern head. Excessive exertion, certain stenches, prolonged mental tension, especially in the softer sex, the warm bath, sitting with the back to a fire, close apartments or vehicles, with peculiar idiosyncrasies, lead to it. While the ladies of *Rome* love thyme, rue, wormwood, and the like, they are said to eschew roses, lilies, and carnations, so attractive elsewhere. Flowers in sleeping apartments sometimes induce faintishness. Young persons commencing attendance in schools of anatomy, and who are called on to be present at surgical operations, often faint over. This was common during the representations of Siddons, and even those of Kean. It may be witnessed in camp meetings, and in congregations where the feelings are powerfully excited. The terror inspired by spectral illusions has often led to similar results. Of all causes, the most powerful, however, is epistaxis, uterine, intestinal, or traumatic hemorrhage. A person whom I attended for intestinal hemorrhage, fainted eight times in the course of one night. It may happen in phlebotomy, that fainting does not ensue till the ligature be taken off the arm; a result which Cooper ascribes to simple loss of blood. We may side with Haller and Bichat in ascribing this occurrence to diminished action, or I should say, pressure of blood on the brain, the result being hastened if the patient sit or stand. Persons, however, will endure repeated small depletions, when the same amount, suddenly detracted, and from a large orifice, might induce dangerous or fatal swooning. How rapidly, on the occasion of a wound, or uterine hemorrhage, does a strong man or woman lose speech and consciousness; yawning, gasping, and convulsions, unless succour can be afforded, ushering in the last moments of life? Arterial, is said to be more productive of fainting than venous hemorrhage. Be this as it may, the supervention of syncope is one of nature's provisions against destruction, yielding a kind of pause, and enabling the economy to struggle, often successfully, against the approach of death. In all cases, the patient should be laid prostrate on some hard, dry, even surface, the head well back, with free access of air; while cravats, corsets, and ligatures, should be put aside. It is usual to sprinkle or dash the face with cold water, to tickle the nostrils, or to hold some aromatic under the nose; but I have known the throat and fauces injured by the incautious employment of ammoniacal liquids. There is not much risk, with ordinary care, of mistaking lipothymia for actual death; but, I read in a French journal of a practitioner who had much difficulty in preventing a young woman from being buried alive, so persuaded were the relatives of her decease. A sure and certain test, in all doubtful cases, is the advent of decomposition; a test which, in such, should always be waited for. Indeed I have witnessed the apparent supervention of death—the fixed eye, staring features, and relaxed jaw, and yet the patient has afterwards rallied.

VI—ANEURISM.

Of diseases of the artorial system, the most important are ossification and aneurism, often regarded, doubtless with correctness, as results of inflammation. The connexion of inflammation of the great vessels with endocarditis, indeed, has already been adverted to. The endocardium is continuous with the inner coat of the aorta, as well as with that of the vena cava; but, in the great majority of cases, inflammation spreads from the heart to the aorta, from the cava, however, in case of phlebitis, to the heart. Arteritis, which, besides general fever and excitement, is attended by no certain pathognomonic sign, may lead to injection, redness, effusion of coagulable lymph, ulceration, calcareous deposits, and obliteration. Lebert relates gangrene of the hand and fore-arm from inflammation and obliteration of the brachial artery, consequent on fracture. One remarkable result of ossification of the arteries of the extremities, is gangrene, sometimes termed senile. It may, as Dupuytren and others have shewn, occur in the young, but I have heard Astley Cooper assent to the opinions of Pott. In three fatal cases mentioned by Hodgson, the principal arteries of the leg were obliterated by calcareous deposits. I witnessed gangrena senilis on the dorsum, toes, and sole, in an old lady. She recovered after partial sloughing. Less fortunate was a poor girl who lost one leg nearly up to the knee, from sphacelus ensuing after a wetting incurred while reaping during menstruation. I have, however, met with fatal gangrene of both legs. Curious instances of gangrene from cold are related by Wiedmann. Larry did not find direct exposure so influential as the transition from a low, to a somewhat higher temperature. A few even advert to periodie gangrene; and Cullerier describes mortification of the penis in gonorrhœal subjects who had to work in night cellars, *fosses d'aisance*. Gangrene and sphacelus are the same. The employment of ergot of rye in food, as I have mentioned in a thesis on the subject, induces epidemics of dry gangrene in the extremities of man and brute in Sologne and elsewhere. Sometimes gangrene is more apparent than real; there is a sort of local asphyxia, as it has been termed, the part recovering; at others, practitioners have been deceived by dark-coloured ecchymoses. Sometimes, also, the skin remains exempt, while the cellular tissue beneath is destroyed. In gangrenous limbs, the parts, if permitted, will undergo a sort of spontaneous amputation. Sloughing cancer and sloughing chancre, thus sometimes undergo an automatic cure. Hebreard and Larrey have known amputation to succeed even before gangrene had ceased to spread. In what is termed senile gangrene, venesection has sometimes, as in a case by Dupuytren, proved advantageous. Out of thirty-six cases by François, thirteen recovered, the remainder died.

Aneurism is most frequent, as well as dangerous, in the great arterial trunks; next to these, according to Richerand, come the popliteal, crural, primitive carotids, subclavian, axillary, and brachial. It is much more frequent in men than women; in adults than the aged or very young. Astley Cooper estimates the proportion of the sexes as five to one; but if popliteal aneurism be included, the difference is still greater. Women, he adds, as they exert the limbs less, are not so

liable to external aneurism as men. As to spontaneous, apart from traumatic aneurism of the legs, forearms, hands, feet, and brain, it is excessively unusual. Some are prone to the disorder in several places at once. Aneurisms have been divided into true, mixed, and false, for which Hodgson would substitute spontaneous and traumatic—spontaneous, preceded by disease of the artery, followed by dilatation of one or more coats—traumatic, including varicose aneurism, from wounds, rupture, or ulceration. For a knowledge of true aneurism, with enlargement of the whole or a portion of the circumference, we are indebted to Fernelius; it is very rare. False aneurism with ulceration or rupture of the internal and middle coats, also expansion of the external, has been elucidated by Scarpa, who esteemed it the only form. The denomination of mixed aneurism, implying the union of both, seems wholly needless. Arteries are subject to dilatation, sometimes presenting a sacculated aspect like that of the colon; of this, the ascending portion and arch of the aorta, according to Hope, are the most frequent seats; but the descending aorta, both in the chest and abdomen, may be affected.

Varicose aneurism, so named, is induced by abnormal communication between a vein and artery; aneurism by anastomosis, is commonly congenital. The former is usually occasioned by the common and reprehensible practice of bleeding over the artery, which, when carelessly performed, sometimes causes the lancet to transfix the artery, which forthwith discharges its contents along with those of the vein, in jets isochronous with the heart's systole. Unless the compression then apt to be practised serve to obliterate the vessel, the greater impetus forces the arterial blood, with a peculiar sound, into the vein or cellular tissue, and distends them after the manner of a varix, forming a throbbing tumour that may be emptied by pressure. In one of Larrey's cases from gun-shot, and other wounds, the subclavian artery and vein were implicated, leading to obliteration of the axillary and brachial arteries. Cooper relates an instance in which an ignorant person opened an aneurismal varix at the bend of the arm, with a lancet. As for aneurism by anastomosis, the erectile tissue of the French, it consists of a congeries or net-work of small arteries and veins. The vessels, small at first, a mere speck in fact, in time, with the tumour that envelopes them, become gradually larger, eventually livid, and bursting at intervals, occasion violent, perhaps fatal hemorrhage. The least excitement, as well as coughing, laughing, crying, or the menstrual period, induces local tension, livor, and, perhaps, rupture. In one instance, the discharge was observed to be vicarious of the menstrual flux. Aneurism by anastomosis is commonly congenital, but John Bell conceives that it has arisen from pressure of the brim of a hat, or a slight blow. Sometimes, a succession of tumours are observed. They occur mostly on the surface, but may ensue internally. The doughy feel when external, the facility with which pressure evacuates the tumour, its pulsations isochronous with the arteries, and tendency to hemorrhage, betray its real nature, and, in my mind, create a complete line of demarcation between it and tissues, in one sense erectile, as the placenta, nipples, lips, and generative organs. Fungus hematodes or bleeding cancer, however, appears to participate in some of the characters of erectile tissue. Not very unfre-

quently, aneurism by anastomosis implicates the spongy extremities of the bones. Sometimes it bears the aspect of a mulberry, as I have had occasion to witness, over the forehead and upper eyelid. In the latter instance, small threads in the manner of a seton, subsequently, however, made to include the tumour like a double ligature, as in many instances needles, by inducing adhesive inflammation and the probable deposition of coagulable lymph, effected a cure. Until a more successful line of treatment had placed them within control, erectile tumours were the terror of the surgeon. Complete ablation afforded the only chance, as the least remnant was sure to reproduce the disease, perhaps in a more aggravated form. The femoral artery has been tied, and the thigh amputated; while the carotid and labial arteries have been taken up for erectile tumours in the eyes and lips, with equal want of success. Gerard several times removed, both with the knife and cautery, accidental erectile tissue in the shoulder of a lady, but it always reappeared when the wound was nearly cicatrized. Wardrop extirpated congenital subcutaneous nevus, the size of half an orange, from a child ten days after birth. So profuse was the bleeding, however, that the infant perished.

Symptoms of aneurism in a large trunk vary with the extent and duration of the complaint. Some are affected much as in disease of the heart, with which, indeed, the malady in question may be united; while in others, the general health undergoes little or no derangement. Aneurismal swellings may inflame; the vessels becoming closed with coagulable lymph, the tumour ceases to be supplied with blood, and sloughs, when, if the patient hold out, the parts heal up. In other cases, a lamellar coagulum forms, the artery, from the pressure, is obliterated, and the disease disappears. Much more frequently, however, the tumour swells and points, the skin becomes thin, livid, and discoloured, and, lastly, sloughs, the blood streaming away by small orifices, or issuing in one frightful and fatal gush. The patient, ere this consummation, may die exhausted, as I have witnessed in aneurism of the common carotid, when just, as it seemed, on the point of sloughing. A dragoon is mentioned by Hodgson, in whom the tumour, which appeared after a hard field day, extended several inches above and below Poupart's ligament, with violent pulsation, inflamed and attenuated parieties. The man was put on low diet, and the swelling now more solid, was observed to become livid and covered with vesicles, so that death was momentarily expected. At length, sloughing, extending to the raphe of the perineum, spine of the ilium, abdominal muscles, and thigh, ensued. Many pounds of coagula were discharged, and the immense chasm eventually filled up. In another case of sloughing popliteal aneurism, the patient sank during the process, and both ends of the artery were filled with plugs of coagula. Instances of spontaneous recovery are described, or adverted to, by Astley Cooper, but not enough to redeem this terrible disease from the character of fatality which attaches to it. Sometimes life is protracted for a little, when the tumour is on the point of sloughing, by adhesive plaster and a bandage, but, when it does not point externally, this miserable resource is not available.

The tumour does not always burst into parts with which it is in immediate contact; since these, as Littré and Morand have shewn, may

have increased in thickness and consistence. In aortic aneurism between the right subclavian and left carotid, described by Maloët, an opening, followed by copious vomiting of vermilion-coloured blood, took place through the rings of the trachea, the lungs remaining free. Richerand mentions aortic aneurism which discharged its contents at the bifurcation of the trachea, with sanguineous engorgement of the left lung. In an instance by the same author, aneurism of the cross, opened into the left bronchus: coughing brought on the evacuation, which proved fatal in a few minutes. A woman bore about aneurism of the cross, from a blow, for three years. Stooping one day to pick up something, blood gushed forth in torrents, so that she fell prostrate and expired. The opening was through the left bronchus, several rings of which were destroyed. There was only a little blood in the left lung, none whatever in the right. Laennec mentions one instance in which the blood was effused into the substance of the lung; another into the spinal marrow. Morgagni and Scarpa relate in cases which it found its way into the pericardium; Pargen, Zeink, and Wells, others in which it escaped, a very rare occurrence, into the pulmonary artery. Cooper describes an aneurismal tumour just above the celiac artery, which burst into the jejunum, the patient dying while passing bloody stools. In another, the hemorrhage came from the bladder, into which the tumour, formed under the gluteus maximus and in the ischiatic notch, had discharged itself. Wherever formed, however, great and serious changes are apt to ensue. The ribs, sternum, clavicles, ossa ilia, and spine, owing to the pulsatile pressure, may be more or less absorbed, distorted, and attenuated. In some, the bone pressed on, becomes larger, while the hollow portion, as Hodgson observes, is lined with an artificial membrane. In others, the periosteum is removed, the bone loses its nutrition and becomes carious. Corvisart relates how the sternal end of the clavicle was once luxated. Cartilages, as Hunter observes, give way more rarely; but cases, by Hodgson and others, in which they did so, are on record. The heart, lungs, and other viscera, are sometimes displaced; pressure on the trachea has been known to affect the breathing, and on the veins of the neck and superior cava, has induced a sort of coma. Indeed, Reynaud gives an instance in which the cava was almost obliterated by aneurism of the ascending aorta. Closure of the esophagus and of the thoracic duct, is recorded by Laennec. Neuralgia, and even paralysis, when the nerves were implicated, have been induced. Aneurism of the descending aorta leads to derangement of the bowels and kidneys, and, perhaps, destruction, misnamed erosion, of the vertebræ.

The signs and symptoms vary with the locality, extent, and duration of the disease. Pulsation, as appreciable by the eye or hand, and a peculiar whizzing or *bruissement*, perceptible both by the ear and hand, are the pathognomonic signs. According to Laennec and Bouillaud, in aortic aneurism under the sternum, the pulsation, which is sometimes so great as, in a manner, to hurt the ear, is obvious, not only along this bone, but the cartilages of the ribs. In aneurism of the descending aorta, as confined to the thorax, the pulsation is still more evident, and extends more to the back; in both cases, we have the bellows' murmur, and a kind of sound which Hope compares to the rasping of a plank. Patients are sensible of the pulsation of aneurism

of the abdominal aorta; which also conveys abnormal sounds to the ear, and a peculiar vibrating thrill to the hand. Notwithstanding the bellows' sound and purring tremor, more or less connected with thoracic aneurism, Laennec says, that, after ten years' research, he was far from certain to what extent mediate auscultation is available. Bouillaud mentions that he has twice, by means of auscultation, detected aneurismal tumours, without external prominence, though large in one instance as the head of a fetus at term. The pulsation may be double; the two-fold action of the heart being conducted by the tumour. Indeed, Chomel and Dalmas conceive, that the only sign calculated to awaken attention is clear single or double pulsation behind, or to the right of the sternum. Here dexocardia, or cardiac displacement, from pus or serum in the left pleura, must not be mistaken for aneurism. Varicose jugulars, as these writers remark, are readily distinguished by the different results induced on pressure of the fingers. Able surgeons, as the late Mr. Burns, have confounded aortic with subclavian aneurism; an error which it is very desirable to avoid, seeing that the latter alone can undergo operation. Percussion and auscultation shew, however, that, in one case, the tumour does not extend towards the thorax, and that abnormal sounds in that direction are absent. Percussion, Piorry conceives, may determine the extent of the swelling, as well as its interlimitation, with regard to the surrounding parts. He says, that, in two instances, by inclining the head forward, and separating the sterno-mastoid muscles, the fingers were introduced deep enough to feel the dilated aorta. In recent external aneurism, pressure on the tumour, or on the trunks leading to it, suspends the pulsation; but, in long-standing affections, with fibrinous deposits, this is less observable. The pulsation, moreover, is excentric, the tumour being dilated; whereas, in heterologous formations, which may often be pushed aside, an impulse is communicated to the whole mass. In very old aneurisms, indeed, the pulsations may be lessened or absent. Aneurisms, even by men of experience, have been mistaken for abscesses, an error that, in more than one instance, has led to disastrous consequences. Sometimes, however, both have been combined. The smallness, whether of thoracic or ventral aneurism, in the early stages, every thing else alike, is an obstacle to discovery. Nothing reveals more strongly the occasional obscurity of the diagnosis, than the frequency with which aneurism has been overlooked in life. Louis mentions a subject that was brought into La Charité, labouring under catarrh and dreadful dyspnœa, which increased so as to make the patient wish for death, which indeed soon ensued. Among other alterations revealed by no auscultary sign, aneurism pressing on the pulmonary artery, to which Louis ascribes the dyspnœa, was found in the cross of the aorta. Cruveilhier mentions aphonia from pressure on the recurrent nerve; and Chomel adverts to complete, though circumscribed absence of respiratory murmur, owing to pressure on a leading bronchus. Aneurism of the pulmonary artery is excessively rare: in a case by Hope, there was impulsion with purring sound between the cartilages of the second and third ribs to the left, corresponding with slight tumefaction. Aneurism of the abdominal aorta, otherwise not very rare, is simulated by various swellings; by nothing more so, however, than nervous pulsation, so named, at the epigastrium, which Laennec says

he has several times seen thus mistaken. I have known many instances of this affection: one in a female, in whom it subsisted to an extraordinary extent, and who, I believe, possessed the power of exaggerating it. In another case, a fellow went about alleging that a reptile had crept, while he slept, into his stomach. The pulsations may be felt in the course of the aorta, but the circumscribed aneurismal swelling is absent. In a paper in the *Dublin Medical Journal*, by Fausset, in which he recommends leeching, cupping, counterirritation, aperients, and mercury pushed to slight ptyalism, he speaks of fulness, hardness, and pain on pressure, with great vital depression. In the cases which I witnessed, the patients felt soothed rather than otherwise, when the hand was pressed on the part; nor did I observe either fulness or hardness. Dilatation of the ascending aorta, according to Raciborski, presents the abnormal sounds, though, perhaps, a little lower, and more to the right, attendant on false aneurism, with impulsion at the sternal ends of the clavicles and lateral parts of the neck; at the same time dulness is absent.

Aneurism has been referred to over-action of the heart, violent efforts, mental emotion, and prior disease. Marjolin, Berard, and Bouillaud, have ascribed it to hypertrophy of the left ventricle. Hodgson is of opinion, that partial or general dilatation not unfrequently precedes. The large internal trunks, as Pelletan and others observe, having a greater relative pressure to undergo, are so much the more prone to the disease. Pressure on the arch and cross of the aorta, in some cases, may induce aneurism, though hardly with the frequency alleged by Monro. That previous disease is commonly necessary, seems additionally proved by the experiments of Hunter and Jones; the former having pared off the middle and outer coats in the carotid of a dog, and the latter having placed a ligature, which was afterwards removed, so as to divide the internal and middle coats—in both cases, without the production of aneurism. The inference seems no way invalidated by Nichol's having subjected the dead artery, the inner and middle coats being divided, to pressure and dilatation from injected water. An old French writer, Paré, I think, mentions a courtier who induced popliteal aneurism by kicking open the doors of a wild beast's den. Cooper speaks of its production in a gentleman from falling into a ditch; another, in whom aneurism, caused by rising in bed, ensued in the radial artery. In both cases, the patients felt something snap. Aneurism of the ham is said to be frequent in coachmen—of the aorta in horsemen. Richerand, indeed, affirms that ten, out of every twelve cases of the former, arise from violent extension of the leg: his experiment of jerking forward the limb of a dead subject can hardly be considered conclusive.

Treatment may be divided into medical and surgical. Nature sometimes effects a cure; but, apart from surgical aid, we rarely succeed in imitating her processes. All the great arteries, the subclavian and aorta among the rest, have been spontaneously obliterated, collateral branches enlarging and carrying on the circulation. Astley Cooper tied the aorta of a dog with success; once in the human subject without immediate death. The subclavian and carotids, also the iliacs, have been repeatedly taken up, often successfully; while the *arteria innominata* has been secured by Mott. The operation for aneurism,

to the great triumph of modern surgery, has proved fortunate even when gangrene had commenced. In the old, tedious, painful, and uncertain operation, the circulation being first secured, the tumour was laid open, the clots turned out, and the artery tied, both at its inlet and outlet. Anel, in 1700, Dessault, in 1785, took it up immediately above the aneurismal tumour; but, to John Hunter must be ascribed the merit of securing it remote enough to permit a sound portion to be operated on; and yet, not so far as to allow a collateral branch to intervene. The circumstance of aneurism, in Hunter's first case, reaching from the ham to the triceps tendon, as well as his superior reasoning, led at once to the general adoption of his practical views. Brasdor, followed by Cooper and Wardrop, in certain cases in which the vessel could not be secured next the heart, took it up, the distal operation, beyond the tumour. Of the effects of general pressure, Hodgson gives some successful instances. As to medical treatment, which mainly refers to aortic aneurism, or where the knife does not reach, the indications are to lower and control the circulation, by bodily rest and mental quietude, low diet, and, in suitable cases, blood-letting. Albertini and Valsalva, two Italian students, according to Morgagni, bled—at first largely, then to a moderate extent, reducing the food to twelve ounces of solids, and eight of fluid, daily; so that, at last, the patient could hardly turn in bed or raise the arm. Leeches, with ice and refrigerating lotions topically, acetate of lead internally, have been recently combined. If the foregoing treatment be carried too far, morbid reaction is induced, and the blood, perhaps, becomes too serous to coagulate. I saw the plan fairly carried out in a negro in Stephen's Hospital, as well as in other instances. It has been, though rarely, successful. In the majority of cures recorded by Hodgson, debilitating measures were resorted to. A soldier of twenty-five, relates this writer, had aneurism pointing near the sternum, with absorption of the cartilages of the fourth and fifth ribs, violent pulsation, and dyspnoea. He was repeatedly bled, placed on low diet, and took occasional purges. In a month, the tumour had diminished; in three months, it was no longer perceptible, while the breathing was greatly improved; in six, he was able to return to his occupation, as a labourer. A stout man of fifty, had violent pulsating aneurism; the size of the fist, which caused great pain and hacking cough, as well as destroying the cartilages of the second and third ribs. He was repeatedly bled and purged, with low diet and digitalis. In six months, the tumour became stationary, and the respiration less difficult, so that he could resume his work. Death subsequently took place from dropsy, but aneurism had entirely subsided. A thin woman, who had a pulsating tumour the size of an egg in the right side of the chest, with intolerable pain and dyspnoea, was freely bled and purged the first week; cold lotions were applied to the tumour; while the diet consisted of currants, barley water, and a little bread. Dyspnoea was relieved, but the tumour increased; and she left the hospital to return with the disease greatly aggravated. Similar means, with leeches, were employed afresh, and by the end of the year, the tumour had become firm, the pulsation deep, and the integuments sound; while the general health was good. Pelletan gives fourteen cases in his *Clinique chirurgicale*, two of which were cured, while the rest were benefited. In several, bleeding was carried to

a great extent; it is desirable, however, to avoid fainting. In one old man with aortic aneurism to the right, while cold cataplasms were applied, copious depletion and rigorous low diet were enforced. Within eight days the pain and pulsation disappeared; after which, to gratify the extreme craving, slight but gradual increase of food was permitted. After some months, the man returned to his business as a porter, grew fat, and, saving slight and deep-seated pulsation, retained no vestige of the complaint. In the fifth case, a very large axillary aneurism was removed on similar principles. Here, the man was bled six times, to the extent of two *pallettes*, or about eight ounces each; while the diet consisted of two basons of soup, and some lemonade, daily. Powdered ice and cold lotions were locally applied; and after some months there was only a small knot in the axilla. The patient, in the course of treatment, was reduced to such extremity, that more generous diet and a little wine had to be allowed. Needles, with a galvanic current through them, in order to induce coagulation, have been introduced into aneurismal tumours without effect.

VII—PHLEBITIS, INFLAMMATION OF THE VEINS.

VEINS are liable to inflammation, induration, thickening, and partial enlargement; in a few instances, to calcarious degeneration of the coats, also phleboliths, or calculi in the cavities. All these are of little importance compared with inflammation, which in certain circumstances constitutes one of the most fatal and uncontrollable of diseases. Phlebitis, or its products, may be local or diffused; a distinction of the last importance, since the former may be perfectly innocuous, whereas the latter is generally fatal. The disease, though divided into traumatic and spontaneous, is almost always preceded or superinduced by some lesion of continuity. Little was known of inflammation of the veins till the genius of John Hunter—fertile in observation and discovery, was happily turned in the direction. He had occasionally witnessed the death of horses after phlebotomy in the neck, from inflammation extending along the lining of the vessel in the direction of the heart. Since his time, Hodgson, Breschet, Dance, Ribes, Cruveilhier, Carmichael, Legallois, Mayo, Abernethy, Arnott, Lee, and others, have thrown further light on the subject. When a vein is divided, as in venesection, every one knows that the symptoms are commonly of the mildest, and the inflammation, if any—M^cCartney denies its occurrence, very slight. Even in the event of suppurative, in place of adhesive inflammation, there is little or no uneasiness. Once, however, pus is no longer circumscribed by clots or adhesions—once it finds entrance into the general venous current, secondary actions are set up, purulent deposits ensue in the different viscera, the economy is poisoned by the influx, and, after a few ineffective, though violent struggles, gives way. Fatal symptoms are consequent not merely on the spread of inflammation, but, on the admixture of purulent matter with the blood. Phlebotomy rarely goes beyond the production of the compact clots which precede adhesion; but, perhaps from using the arm too soon, a dirty lancet, foul air, or individual predisposition, suppura-

tive inflammation is set up. Should a clot, or a succession of clots keep firm, it is well; but if these give way, or be infiltrated with pus, pain and tension forthwith ensue along the course of the vessel, which becomes indurated, perhaps, imperforate, and rolling under the finger; while a streak of red appears along the surface of the skin. At the same time, rigors, headache, fever, coma, or delirium, ushers in the approach of death. In protracted cases, we have the discoloured surface, intense prostration, brown dry tongue, fuliginous teeth and gums, quick small pulse, cold sweats, muttering, and subsultus, which characterize typhus. In a few instances, petechiæ and gangrene have been witnessed; in this last, however, the veins, any more than the arteries and nerves, do not appear to participate. Notwithstanding all this frightful train, cases occur in which patients experience no suffering; nay, even, as we see by a relation in Bouillaud's work on diseases of the heart, manifest a delirious joy. Few recover in the advanced stages; though some have done so, when there were no grounds for hope. Occasionally, a temporary but delusive amendment takes place before death. It is remarkable, as Cruveilhier observes, that, with the exception of a sanguineous tinge, the possible result of imbibition, it often happens that none of the ordinary results of inflammation are present in the internal surface of the vein. Independent of the contained clots and pus, however, there are usually vascularity, fragility, and deposition of lymph in the external membrane and cellular tissue. A robust soldier, says Hodgson, was bled for ophthalmia; this was soon after followed by fever, quick feeble pulse, and difficult respiration, acute pain, and tumefaction extending up the arm, delirium, and death. The cephalic vein, not to mention the axillary and brachial, where punctured, was thick as an artery, and did not collapse: an inch above, the cavity was obliterated to the shoulder; the external jugular and subclavian were filled with pus, while small abscesses subsisted in the lungs. Puchelt and Wilson observed obliteration of the inferior cava, iliac, and uterine veins. Sometimes the clot, by preventing the further passage of pus, converts the vein into one or more sinous abscesses. Cruveilhier, in mammary phlebitis of a newly-delivered woman, found a hard, painful cord; a fluctuating point, however, having been opened below the nipple, the vessel speedily disgorged itself. So long as pus is confined, however wide the circuit, and does not reach the general current, the effects are purely local. Sometimes the gaping extremity of a vein opens into an abscess: Travers has seen the internal jugular, and Raikem the right primitive iliac, terminating thus. In phlegmasia alba dolens or crural phlebitis, there is great cedema; sometimes obliteration, with local or general purulent deposits. Clark, Cruveilhier, Wilson, and Velpeau, have discovered pus in the veins of the womb in suppurative uterine phlebitis. Hooper, Tonellé, and others, witnessed a similar result in inflammation of the sinuses of the dura mater. Lastly, Breschet and Leco have repeatedly observed inflammation of the umbilical vein in new-born children, extending to the vena cava and substance of the liver.

Among the remarkable results of diffused or suppurative phlebitis, are small abscesses or purulent deposits, appearing simultaneously in the brain, lungs, spleen, kidneys, liver, heart, muscles, serous and synovial cavities; the large articulations, however, oftener than the

small. The inferior lobes of the lungs next the liver, are most frequently affected: Andral has seen abscesses so numerous in the lung, that a scalpel could not be thrust in without implicating some of them. Those in the liver and brain are superficial; in the spleen, they are more a mixture of blood and pus than true abscesses. Velpeau, Marechal, and Legallois, supposed that pus once locally produced was translated to the different organs; Dance and Cruveilhier, however, while they grant the admixture of pus with blood, conceive that when the former is locally deposited, it proves the source of capillary or interstitial phlebitis. In primary local phlebitis, the pus is often absorbed, not as pus, but reconverted by a singular process like other absorbed substances, into blood; when taken up into the venous current, aided by the tractile power of the right auricle during its diastole, and of the lungs in inspiration, it is mechanically diffused through the vital fluid. If, says Cruveilhier, an irritating fluid, ink for example, be injected into the femoral vein of a dog, in a distal direction or from the heart, which may be accomplished by destroying a few valves with a probe, should the collateral veins not carry the fluid into the circulation, in which case the injection kills, the limb swells, and, if the animal die or be destroyed, innumerable bloody foci may be detected in the muscles and cellular tissue. The larger veins, as also those smaller ones which terminate in the bloody foci, are distended with concrete adherent blood, those in the healthy parts remaining free. If the creature survive the experiment, purulent replace the bloody foci, and pus, the coagula in the veins. In one instance, a twig was introduced from the upper part of the femoral vein low down as the ham, and another, far as the ascending cava. In six days the animal died, labouring under great oppression; infiltration pervaded the parietes as high as the chest, while the veins of the limb were injected with pus, and purulent foci were apparent on cutting through the muscles. It was desirable to know what became of the foreign substance when it gained admittance into the circulation, and mercury, which is always recognizable, being injected into the jugular and femoral veins, the animal, the quantity being considerable, died, greatly oppressed, in some hours, the whole of the mineral being found in the lungs, which were gorged with serum. If less were employed, life lasted longer; red induration was discovered round each globule; at a further interval, purulent, then tuberculous foci; and, lastly, if the animal held out three months, tubercles, each containing a globule of mercury, were visible. Cruveilhier replaced the marrow of the femur with quicksilver, and, after death, the latter was found disseminated in the lungs and occupying the rami of the pulmonary artery. Once, a single globule only was introduced, and rediscovered in the lungs a month after, subdivided into several smaller ones, each constituting the centre of a tuberculous abscess. The liver being the terminus of a particular venous system without valves, this pathologist drew out a fold of intestine, and passed some mercury into one of the mesenteric veins. After four and twenty hours, the surface of the liver was found studded with red spots the colour of wine-lees, each containing a globule; the mucous, muscular, and peritoneal coats, also, of the bowels, here and there participated in similar changes. After another experiment, the liver and epiploon were strewed with innumerable hard, transpa-

rent tubercles, some of them purulent, and all containing one or more globules of quicksilver. From the foregoing, it appears that the lungs for the general circulation, the liver for the abdominal, are the inevitable outlets, and barriers only rarely overcome; hence the ancient saying, *vena portarum, porta malorum*, involves an important truth. Morbific materials, then, we may venture to suppose, gaining admission into the intestines, are detained by the liver, which evacuates them by increased secretion of bile, or suffers them to pass into the general venous circulation. Those, on the other hand, which find an entrance otherwise than by the intestines, or which escape the liver, gain the lungs, which sometimes arrests them, at other times, draughts them off by copious exhalation, or, perhaps, lets them escape by the pulmonary veins, thence into the arterial current and capillaries of the different viscera. Gaspard and others have also demonstrated the production of purulent or tuberculous abscesses in the lungs or elsewhere, from injected mercury; sufficiently proving that pus, in substance, cannot be introduced into the circulation except by direct injection, or the aspiring power of the venous current, and then leading to capillary laceration and visceral abscesses, every time the ordinary emunctories prove unequal to eliminate the poison.

Phlebitis has been divided into traumatic and spontaneous, but the latter is very rare. Bouillaud and others relate instances of phlebitis originating in chilblains. The separation of the placenta, the ligature or section of varicose veins, as well as of the umbilical cord, the operation for piles, punctures in dissection and phlebotomy, in some instances, perhaps, the bites of animals, also blows, bruises, fractures, wounds, and surgical operations, all tend to produce the disease. We may even have the phenomena of phlebitis, so far as regards fatality, from the introduction of pus, as when a vein happens to open into an abscess, in ulcers, in cancer, hospital gangrene, and phlegmonoid erysipelas. I recollect, as illustrative of peculiarity of constitution, natural or superinduced, an instance in the Edinburgh Infirmary, wherein of two persons bled with the same lancet, one fell a victim to phlebitis, while the other wholly escaped. The dresser assured me that the instrument was perfectly clean; otherwise, the practice of using the same lancet indifferently, for vaccinating, opening abscesses, and bleeding, is disgusting, dangerous, and reprehensible. Even the prick of a pin employed in dressing blisters, as in a case by Breschet, has been known to induce phlebitis. Many are punctured while dissecting, yet the majority escape; Dease and Shekleton, both teachers in the Dublin College of Surgeons, besides many others, perished this way. Recent subjects, it is alleged, are more dangerous than putrid. Abernethy justly considers undue motion in the arm after bleeding as productive of local phlebitis; I have known it thus to take place in a sailor after hauling ropes in a gale; but I cannot agree with Thompson, that blunt lancets, merely, induce the disease. It was an ingenious inference of Dance, that the small abscesses in the liver and elsewhere, after blows and wounds on the head, were results of inflammation of the diploic veins. In 1814, Cruveilhier having turned attention to numerous fatal cases preceded by typhoid symptoms, after amputation as well as other operations on the bones and soft parts, in the Hôtel Dieu, detected inflammation of the medullary

substance in almost all. He was once present at a dissection in which the lungs were stuffed with abscesses. Phlebitis was vainly sought for, till it occurred to him to suggest division of the tibia and fibula, whereupon the spongy extremities were found infiltrated with pus.

Arnott, in the fifteenth volume of the *Medico-Chirurgical Transactions*, informs us that his attention was called to the subject by the circumstance in a case of phlebitis, consequent on venesection, of finding a deposition of pus, without previous inflammation, under the skin of the opposite fore-arm; at another time, destructive inflammation of the knee-joint, with pus in the cellular substance of the thigh; in a third, collections of matter in the lungs. In these, as in fourteen more, inflammation did not extend to the heart. A young woman, he relates, after some accident, was bled; but the arm became stiff, painful, and swollen, with general febrile reaction, and discharge of pus and blood from the wound. Restlessness, anxiety, and prostration increased, till she died, when an abscess was found under the skin of the fore-arm, with pus in the vein from the elbow to the axilla. A case in which the crural vein was pricked in the operation for popliteal aneurism, is related in Mr. Carmichael's essay. Local pain, with purulent discharge, ensued; and after moaning, restlessness, torpor, debility, brown tongue, and repeated rigors, the man died. Out of seventeen cases, the inferior cava was inflamed in three, inflammation rarely extending to the heart. Mr. Arnott observes, that phlebitis appears to be limited where a trunk is concerned, by the entrance of a branch; and where a branch is concerned, by the junction of this with the trunk. Death took place from the fourth to the forty-ninth day, with sero-purulent effusions in the pleura, pericardium, cellular membrane, joints, or pulmonary disease and opacity of the cornea and arachnoid. Numerous cases might be adduced from authors as to the occurrence, after wounds on the head and other injuries, of purulent deposits in the liver, lungs, pleura, heart, kidneys, and spleen; also, in the viscera, joints, eyes, cellular substance, and skin, after labour; consequent, in the one, on diploic, in the other, on uterine phlebitis, and in both, on the entrance of pus into the circulation. In fact, wherever the point of departure may be, whether inflammation affect the veins of the upper or lower extremities, the external or internal veins, those of the uterus or other viscus, the veins of the soft parts or those of the bones, whether traumatic or spontaneous, once the poisonous matter enters the circulation, the local and general changes already adverted to ensue. In other respects, Laennec has observed pus in the mammary veins of cancerous breasts, and Laurence in those of cancerous rectum; while Cruveilhier has seen cancerous matter in the renal veins in cancer of the kidneys, in the cava when encephaloid tumours adhered to its parietics, in the ascending cava in cancer of the testicles, before and after amputation, in the axillary, subclavian, and descending cava, in osteosarcoma of the scapulo-humoral articulation, and in the ramifications of the vena porta in cancer of the liver. This last writer also describes obliteration of all the hepatic veins from coagula, after tying the pneumo-gastric nerves in animals. Finally, Robert has described the supervention of hepatic phlebitis superinduced by admixture of bile in one of the hepatic veins, in an individual who died with all the symptoms of typhus.

Cruveilhier, in the fourth livraison of his *Anatomie Pathologique*, as well as elsewhere, observes, that uterine phlebitis marks one of the most dangerous forms of puerperal fever. A woman in labour, exhausted by pain and emotion, he compares to a person who has received a wound or undergone a surgical operation. The inner surface of the uterus with its gaping venous orifices, presents a near counterpart to what is seen after amputation. To repair so great a solution of continuity, a traumatic fever, like that of the wounded, accompanied by the secretion of milk, takes place. Adhesive inflammation may be confined to the placental surface, or it may extend to the uterine, ovarian, or even the iliac veins, with local pain, testifying its progress. Here, Cruveilhier remarks that repeated leeching of the hypogastric region, with baths, injections into the uterus, and mild aperients, have prevented him from having had many opportunities of studying adhesive phlebitis; except when patients, months after, have died of other complaints, in which case, the hypogastric veins would be found filled with hard, colourless concretions, and, consequently, impervious. As adhesive phlebitis extends, so may suppurative, to the uterine, ovarian, and iliac veins. Should clots confine the pus, the phenomena are local; but if pus, however restricted the inflammation, mix with the blood, those visceral abscesses, so well described by Dance, ensue in the midst of typhoid symptoms. Fortunately, suppurative uterine phlebitis is rare, as adhesive is common, since Cruveilhier, in the course of two years' practice at the Maternité, had only an opportunity of witnessing it seven or eight times after death. The majority presented pus in the lymphatic vessels of the uterus and ovaries; otherwise, suppurative uterine phlebitis is seldom accompanied by puerperal peritonitis. Thus, in the case of a woman received into the Middlesex hospital, under Mayo, labouring under suppressed lochia, followed by fever and erysipelas, inflammation and fluctuation of the left arm, right hand, and leg, with haggard, sallow countenance, brown tongue, and death, matter was discovered between the neck of the bladder and symphysis pubis, as, also, in the left spermatic vein, but the peritoneum was sound.

In two papers by Dr. Lee, in the *Medico-Chirurgical Transactions*, one on phlegmasia dolens, the other on uterine phlebitis, it is stated, first, that inflammation of the iliac and femoral veins gives rise to all the phenomena of what has been termed phlegmasia alba dolens in puerperal women; second, that such inflammation begins in the uterine branches of the hypogastric veins, spreading from them to the iliac and femoral trunks of the affected side. This, the reader will perceive, is what has already been described as adhesive crural phlebitis, extending distally to the extremities, and not to the source of the circulation. Bouillaud and Davis, however, both preceded Lee in determining the nature of phlegmasia dolens by dissection. In the first case, a woman, during and after labour, complained of pain, numbness, and tense swelling down the left leg, with quick pulse, great irritability, and despondency. Immediately below Poupert's ligament there was a thick hard cord rolling under the finger, exquisitely sensible to the touch, and running in the direction of the femoral vein. Recovery was slow; and, death taking place from hemorrhage at her next confinement, the common iliac with its subdivisions, and the upper portions of the femoral vein, were found ligamentous and imperforate. The

first case of the second paper was also one of phlegmasia dolens; but from the typhoid symptoms and fatal issue of the disorder, accompanied as it was with destructive inflammation of the eyes, rigors, and pulmonary disease, there can be little doubt that purulent matter had gained entrance into the circulation. After death, the vena cava, hypogastric or iliac veins and branches, were inflamed, and, owing to blood-red coagula, more or less imperforate. Lee relates many examples of crural, as consequent on uterine phlebitis; also, others illustrative of the secondary affections already described, ensuing in the muscles, joints, viscera, and cellular tissue. Crural phlebitis, with infiltration of the extremity, may occur in either sex, from cold, wounds, blows, ulceration, and the immersion of veins in cancerous masses in the uterus or elsewhere; it has also been observed in fever and dysentery; in the latter, probably, from intestinal ulcers communicating with some of the subjacent veins. It may affect one or both the lower extremities, in a few instances the upper; sometimes commencing in one while declining in the other. Velpeau would connect crural phlebitis, in some instances at least, with inflammation of the sacro-iliac or pubic symphysis; there is danger here, however, of substituting the consequence for the cause. As for the old notion of phlegmasia dolens being connected with deposits of milk, or the more recent one, of its being inflammation of the lymphatics merely, it is forever exploded. The œdema in puerperal phlebitis is generally proportioned to the extent of inflammation, as it may occupy the femoral, popliteal, crural, and saphena veins, or extend to the larger venous trunks. Cruveilhier, however, mentions that even the inferior cava has been impervious without infiltration of the limb; so that seeing the facility of lateral communication, it is, perhaps, necessary that the small, as well as the large veins, should be obliterated to induce it.

When phlebitis, whether suppurative or not, is local, the disease, however extensive, and whatever the treatment, is rarely fatal; but let the clots or adhesions once be removed—let pus gain access to the circulation, and the most active treatment rarely suffices to check the disorder or avert a fatal termination. In the first stage of phlebitis, so long as constitutional symptoms have not ensued, it is proper to keep the limb, the arm for example, perfectly quiet, and, if the inflammation creep upward, to apply leeches by the score along the course of the inflamed vein, with warm embrocations, and some gentle aperient internally. When the strength is broken down, and the powers are on the wane, wine and diffusible stimuli are expedient. Lee enlarges on the impropriety of premature blisters and bandaging before local inflammation has subsided, and before the collateral veins have become sufficiently enlarged to enable them to carry on the circulation with facility. Œdema, indeed, may persist months, years, or even a lifetime. It is well to keep the swollen and painful limb flexed at the articulation, and somewhat elevated. Several cases of œdema, says Cruveilhier, of the upper extremities, which resisted every other mode of treatment, yielded when the affected arm was kept suspended by the wrist. As for the treatment of the bites of animals, stings of snakes, insects, and pricks in dissection, it is necessary to wash the parts directly, and suck them carefully. If there be any doubt, it will be well to cauterize with liquid ammonia, or even to excise; ammonia and other diffusible stimuli, are often expedient internally.

VIII—VARIX, VARICOCELE, CIRSOCELE.

THIS affection consists of a tortuous enlargement of the veins, in which these vessels are irregularly developed, forming numerous windings and reduplications, in aspect not unlike the colon or large intestines. Andral and others describe different forms of varix, according to the manner in which the vessel is dilated, the thickening or attenuation of the walls, the development of internal septa, or the existence of abnormal openings into the surrounding cellular tissue. The valves are not destroyed in varix, but from the enlargement of the vessel become inadequate. Varix of the spermatic cord or varicocele, on the left side in particular, is extremely common. Many labour under it without knowing any thing about it. Varix is most frequent on the lower extremities, as in the saphena, but is also met with on the surface of the thorax and abdomen, groin, scrotum, and conjunctiva. Piles or hemorrhoids, so termed, are little else than varices. The great internal trunks, the cava, jugular, iliac, subclavian, vena-porta, and azygos, sometimes, though rarely, become varicose. I once met with huge disfiguring varix in the arm of a baker. When the man held the limb down, the vessels became dilated to the size of a goose-egg. Velpeau has seen the arms, fore-arms, and hands, covered with varicose elevations. He speaks, in his *Leçons Orales*, of a young man with a varix between the jaw and clavicle of the right side, large as the fist. He further adverts to varix of the head, nose, eyelids, eyebrows, and under the tongue. I have seen varix to that extent in the legs of a lady, as to render them shapeless, tuberculated columns. Rupture of varicose veins, as recorded by Gendrin and others, may follow violent muscular efforts, long retention of the breath, as in singing or declaiming, and ulceration. Briquet mentions varicose tumours, which, in other respects, are not always equally prominent, as filled partly with fluid, partly coagulated blood; in some cases, with fibrinous deposits and false membranes. Some appear more liable to the disease than others. In two gentlemen, one of whom had walked, in a day, from Glasgow, through Lanark, to Edinburgh, it appeared to ensue from excessive exercise on foot. Garters, a reputed cause, are generally disused except by females, in whom, according to Begin, varicose swellings are less frequent. During the period of gestation, perhaps inattentive to their bowels, women become prone to varix and hemorrhoids, which either disappear at their confinement or become inveterate. Morbid growths, tumours, adhesive phlebitis, and cardiac disease, by impeding circulation in the larger venous trunks, tend to increase the dimensions of those that are more superficial. Bouillaud and Ryan both describe superficial thoracic and abdominal varix from this last cause. A depending posture and over-exertion, occasion varicose tumours to become tense, livid, and painful. The palliative treatment of varix consists in keeping the bowels regular, avoiding exciting causes, and, if in the lower extremities, in employing a bandage or laced stocking, along with the recumbent posture, during the day—the radical, in obliterating the vein by means of caustic or the ligature. This, as occasionally productive of phlebitis, is attended with danger. Velpeau, however, affirms, that by including the skin this risk is obviated. His method is

to pinch up the surface with the vein, and to pass a large pin, in two or more places, under the latter, connecting the ends by a waxed thread suitably crossed. The same method is equally available in varicocele. Brodie divides the vein with a bistoury, without much implicating the skin. Mayo advocates the potassa fusa made into paste with soft soap, and applied through an opening in a piece of sticking-plaster over the vein. After some hours, the apparatus is removed and the part poulticed; the slough separates in the course of ten days, and the vein is found imperforate. This procedure, I have been informed, has been recently practised in Paris with great success; it should be preceded and accompanied by rest and low diet, till all risk of phlebitis and the transport of pus have subsided. These measures involve more or less danger; and the practitioner should pause well, and the patient be made acquainted with the possible event, before resorting to them. Rollers, black wash, and other detergents, are suitable in the case of varicose ulcers.

IX—SCORBUTUS, SCURVY.

THIS is a form of anemia generated by inferior diet, low spirits, and exposure. Scurvy has subsisted from a very early period; and, owing to the consumption of innutritious, salt food, for a great portion of the year, and scarcity of meat and vegetables, appears, at one time, to have been very prevalent, both in town and country. As favourable changes, in these respects, occurred more rapidly on shore than at sea, the malady subsided in one case much sooner than the other. The sea-service, at present singularly healthy, was long devastated by scurvy, of which the ravages have formed the theme of many a pen. Living observers of the complaint are few; but most have read the harrowing accounts of loss of life under Anson, Hosier, and others. The word scurvy appears generic in all the Saxon dialects; thus, it is *scharbock* in German, *scurr* or *schorbert* in Danish, *scheurbiuk* in Dutch, and *skorbejugg* in Swedish. The term scorbutus, repudiated as barbarous by Good, is fully equal to porphyra, which this enthusiastie neologist would substitute. Low spirits, lassitude, and weariness, precede for some time the livid purple spots, spongy, bleeding gums, foul breath, loosened teeth, fungoid ulcers, and the hemorrhagic discharges from nose, mouth, vagina, and anus, which characterize the disease. The complaint is marked by excessive debility; so that persons have fallen dead in alighting from their hammocks, or on being moved from one part of a ship to the other, in standing up at the pumps, or on attempting to go ashore. To such extremities have crews been reduced, that the remains of the dead have lain on the decks washed by the sea, the survivors being unable to dispose of them in the ordinary manner. The surface in this disease grows rough, shining, and discoloured; the cicatrices of wounds and ulcers, and even, it has been said, the callus of fractures, become absorbed. The hardness of the thighs and hams, probably from interstitial effusion, has been compared to that of deal-board. The skin, after the least bruise, is liable to ecchymoses, and even ulceration, which is marked by livid, swollen edges, and a

viscid, bloody discharge; with a fungoid growth well known to sailors of the olden time, by the denomination of bullock's liver. Ulcers of this description have been mistaken for medullary sarcoma; and, when in the gums, for secondary syphilis, by shore-going practitioners unacquainted with the aspect of the disease, or the history of the case. At sea, it has been confounded, owing to the diarrhœa, with cholera. Indeed, Mr. Birnie informed me that scorbutus supervening on, or combined with obstinate purging and vomiting, followed by dark, cold surface, collapse, and death, attacked those convicts on board the *Asia*, who, preyed on by despondency, had been transported for agrarian offences. Habitual felons, as well as the crew, officers, soldiers and their wives, were exempt. So many as fifty were ill at once; and, of two hundred and forty convicts, one half experienced the disease. Patients in scorbutus display a tendency to syncope, anasarca, and night blindness; low spirits and debility increase, and they suddenly expire. Mead found the spleen enormously congested and enlarged; while Poupert observed extravasated blood and serum, also dislocation of the epiphyses of the long bones, and a kind of dissolution of the cartilages of the ribs and sternum.

The prime source of scurvy, there can be no question, is insufficient or deteriorated food; otherwise, wet, cold, hardship, and despondency, are powerful exciting causes. Of two ships of war, equipped alike, the one has contracted scurvy, while the other, apparently from the circumstance of taking prizes, has remained exempt. It is tolerably certain, however great the reverses, that if vessels be well off as to food, clothing, and other necessities, scurvy never appears. Salted provisions were once set down as the only source; but this opinion has lost currency since Cook and others have sailed many thousand miles without losing any of their men from scorbutus, though daily consuming salt provisions; while, on the other hand, the garrisons of Thorn and Azof, during the sieges of those places, not to speak of the French depôts at Norman Cross and Portchester, and the Milbank penitentiary, were ravaged with scorbutus, though not confined to food of this description. In fact, the provisions formerly employed were miserably bad; pork and beef, perhaps two or three years old, termed salt horse or salt junk by the sailors, maggoty bread, and bad water, with few or no extras, constituted the current and wretched fare. The frost, says Trotter, sat in extremely severe, December 1794, and the French taking advantage of our going into port, assembled a fleet at Brest to intercept the outward-bound convoy. It was with great exertion that a fleet was able to sail from Spithead towards the close of January. He suggested the disuse of salt provisions, with other dietetic changes, of which the victualling board thought proper to disapprove; the event, however, in a few weeks, was a more general scurvy than had ever been known on home service. Want of air, and dirty crowded between-decks, every thing else alike, are great incentives to scurvy. Cook took extraordinary care to dry, cleanse, and air the interior of his vessel; so that in June 1773, the *Resolution* had but one scorbutic caso out of three sick; while her consort, the *Adventure*, what from scurvy and the bloody flux, had twenty ill. La Peyrouse, who followed in the track of Cook, was equally fortunate; D'Entrecasteaux, however, who went in search of him, on arriving at the Isle of France, had lost, by scurvy and dysen-

tery, eighty-nine out of two hundred and nineteen men; while, at Java, the mortality was still greater. Foderé states, that the garrison of Guilleaumes, in the maritime Alps, was ravaged by scurvy, solely from lodging the soldiers in the damp casemates of a ruined castle. Sluggishness and inertness, it seems, prove exciting causes even more than over-fatigue; skulkers are always attacked before the active, and marines sooner than sailors. Prime seamen, even, who for this reason, had been exempted from the slavery of the pump, proved early victims. Otherwise, corpulent, inactive, or sickly persons, and newly-pressed seamen, are comparatively prone. Cullen and Pringle's notion, as to the coincidence of scurvy with putridity, is exploded. There is, as Ratier has well expressed, a profound and progressive alteration of the organization, which, unless arrested by curative measures, ends in excessive debility and death. Depression becomes despair, ecchymoses form at every point, and blood flows from every pore; the gums shrink and fall off in bits, the teeth drop out, ulcers multiply, and cicatrices re-open; while the cartilaginous and osseous systems are impaired, infiltration and effusion implicate the cellular tissue, and serous cavities, dyspnœa and debility increase; the unhappy patient, all the while, conscious of the impending destruction, which he cannot avert, and which those about him, sooner or later, are perhaps doomed to share.

It has been already stated, that scorbutus was sometimes mistaken for other diseases. As for what is termed purpura, purpura hemorrhagica, some esteem it distinct from scurvy; while others, with whom I confess I range myself, hold it as identical. The disease bears so close a resemblance, in all its essential features—the spongy, bleeding gums, the ecchymoses, and the hemorrhages from different emunctories, that I only wonder a persuasion of its distinct existence was ever entertained. When scorbutus occurs at sea, aggravations are numerous and not immediately to be got rid off; whereas, on shore, people are rarely reduced to the same extremity. This accounts for the comparatively milder and less fatal character of purpura, as compared with scorbutus. The different circumstances in which these diseases are reported to originate, have been held conclusive as to their diversity; it only shows, however, that scorbutus has a greater range of origin, derangement of the bowels for example, than what has been supposed. Purpura bears bleeding, it has been alleged, scorbutus not; but this confessedly bad practice has avowedly, in the hands of Mackintosh and Fairbairn, caused loss of life; otherwise, what can be more preposterous than venesection in an anemic malady in which patients actually perish from spontaneous hemorrhage. Rayer, at a loss for a ground of distinction, has termed purpura, an acute, scorbutus, a chronic affection; but, if the latter be chronic, it is merely in consequence of its causes being so: every one knows that scurvy does not last when proper curative measures are adopted. Otherwise, he admits that it is nearly impossible to distinguish chronic purpura hemorrhagica from scorbutus; in proof whereof, he refers to Poupart and Thibaut's account of epidemic scurvy among patients in the Hôtel Dieu. Riverius went before Werlhof in distinguishing the ecchymoses in purpura, otherwise scorbutus, from petechiæ in fevers. Purpura simplex, petechiæ sine febre, is not vory uncommon. I have seen, among others, a well-marked case of it in a medical man; and I know an engraver in whom

it appears, whenever he neglects taking exercise and ceases to pay attention to his bowels. If the spots amount to ecchymoses, the term *purpura* is applied, if small, *petechiæ*; otherwise, they are one and the same—in fact, a mild aspect of scorbutus. Many forms, as *purpura simplex*, *urticans*, *sine febre*, *febrilis*, *cachectica*, and *hemorrhagica*, are spoken of. *Purpura simplex* is unattended with hemorrhage; *purpura urticaus*, otherwise *urticaria hemorrhagica*, as the name denotes, is combined with nettlerash; and, as for the *purpura hemorrhagica*, the *morbus maculosus* of Werlhof, it is neither more nor less than ordinary scorbutus. The slightest cause induces ecchymoses, the least wound a hemorrhage; blood even flows from blisters, cauterized surfaces, and ulcers; while, as in scorbutus, it is discharged alike from the fauces, gums, nose, stomach, bowels, lungs, urinary passages, vagina, and uterus. The gums become livid, spongy, and bloody; the teeth however, from the less aggravation of the disease, more rarely fall out, than in scurvy; the tongue is swollen and blackish, with dark spots on the palate and inner surface of the cheeks: children, as Rayer remarks, have even been known to perish in one night, by bloody evacuations from the mouth and nostrils. As for *purpura*, with or without fever, as regards the greater or less acceleration of the pulse, the same thing is witnessed in scurvy, which no one, for that reason, has yet thought of designating scorbutus febrilis and scorbutus sine febre. Scorbutus and *purpura* are alike a species of anemia; attended, no doubt, with more or less depravation of solids and fluids. Simple anemia may complicate various diseases, chlorosis in particular; but the term has been recently applied to it in combination with otiation and discoloration of the tissues, as witnessed in the coal mines of Auzain, near Valenciennes. The skin, in affected persons, became pale and colourless; not a blood-vessel could be traced in the conjunctiva, on the surface, or in the mucous membrane of the mouth: there was noise in the ears, and patients could make no exertion without panting or even fainting. Hallé mentions, that only a little colourless serum could be found in the veins and arteries after death; the muscles, the heart inclusive, were pale and flabby. Roche describes a young woman in whose skin a single blood-vessel could not be traced; the lips were absolutely of the same aspect as the rest of the face, which was frightfully cadaverous, so that when the patient slept she seemed dead. She would remain at times suspended between life and death, and afterwards relate, in confused accents, the horrible anxiety she experienced in finding herself dying without being able to make the least effort to avert the catastrophe. In one of these attacks she expired; but the body was not examined. Since Prevost and Dumas have shewn the liver to be an organ of hematosiis, as well as of secretion, the foregoing writer asks whether anemia may not prove a frequent accompaniment of chronic hepatitis.

Scorbutus being merely the result of depraved and deficient nutrition, the indication will be to furnish patients with abundance of fresh animal food, fruit, vegetables, salad, brandy, porter, wine, air, exercise, cheerful occupation, and warm habiliments. Lime or lemon juice, doubtless a good adjuvant, was at one time esteemed all-powerful in the removal of the disease; but if provisions be good, it is hardly needed—if bad, it will not correct the deficiency. Trotter, not to

mention many others, gives numerous illustrations of the curative and prophylactic virtues of lemon juice, administered in sugar and water to the amount of three or four ounces daily. This, Mr. Baird affirms, was sufficient, even in the worst cases, to enable the men to return to their duty, every symptom, except a slight stiffness in the limbs, vanishing. Yet the gums of some, it is stated, were highly putrid; their legs and thighs much swelled, their limbs contracted—in fact, totally unfit for any kind of exertion. Here, we must not omit to take into consideration that the ships had been furnished, in addition, with fresh fruit and vegetables, as well as beer, porter, and wine. The fleet at Spithead obtained a daily supply of five thousand weight of salad, with astonishing good effects; so that hundreds were cured by means of fresh meat, fruit, and vegetables. Indeed, it was considered that patients got sooner well on board than ashore. In advanced stages, removal was often dangerous; five men dying in the boat that was conveying them from the Downs to Deal hospital. A similar instance occurred in the case of the Centurion at Juan Fernandez. Apples, sour kraut, pickles, spruce, sweet wort, and onions, of which last the shoots are to be cut and seared, in order to keep, have also proved very useful. Vinegar, it is agreed, was not so serviceable as lemon juice, nor the juice as the fresh fruit. Malt liquor is praised. So soon indeed as the beer in Waldegrave and Bridport's squadrons was expended, scurvy rapidly increased. The nitrate of potash has recently been eulogized in strong terms. It has been tried, mixed with lemon juice, in convict ships bound to New South Wales, as obtained by lixiviation from gun-powder, with great advantage. Scorbatic ulcers, of course, will only subside with the disease; but slices of lemon are recommended as a dressing. Of late years, a great improvement has taken place in ships of war; and, from the precautions observed, few communities enjoy so high a range of health. Prevention, indeed, is better than cure; and the means followed by the renowned Cook, in navigating the globe, and by the intrepid Parry during his sojourn in the icy North, will always avert the ravages of this disgraceful scourge. Here the ships were fully supplied with portable soup, tea, coffee, preserved meats, biscuits fresh and sweet in metal cases, water the same; while the men were provided with suitable changes of woollens, the decks rubbed, and only occasionally washed, the temperature, by means of portable and other stoves, being kept at 60 degrees. Books, music, and steady occupation, hindered the men from thinking long; in fine, with such success, that not merely life and health, but comfort and happiness were preserved, in situations otherwise replete with desolation and death.

X—PLETHORA, POLÆMIA.

PLETHORA, or fulness of blood, has been divided into absolute and relative; strictly speaking, however, it is always relative. The frames of many, when the egesta are inadequately promoted by air and exercise, abound with a superfluity of the vital fluid. The moment the former cease to bear due proportion to the latter, blood accumulates,

fat is deposited, while headache, giddiness, and other signs of turgor, display themselves. Obesity, as it is a consequence, by indisposing to exertion, becomes a fresh source of plethora. If some degree of exercise be taken, but not enough for the excretion of superfluous nutritive matter, the individual may retain the aspect of what is termed full health for years. Much depends on constitution; some grow fat on food which will not have the same effect on others: indolence, every thing else alike, promotes repletion, while activity abates it. Some foul feeders grow fat or apoplectic; in others again the secretions become excrementitious and vitiated. Many are so admirably constituted as to bear excess with prolonged impunity, while others give way comparatively soon. In some, the brain, in others, the liver, heart, or kidneys, are the first to suffer. Few, indeed, enjoy perfect health: there is usually some defect in the ingesta or egesta, in the secretions, excretions, or both. Many go on for a long time, whose constitutions yield on the first application of the morbid agent. Plethora, as cause or consequence, may subsist in persons labouring under considerable disease. The fat in such cases is deficient in colour and consistence—flabby, soft, and unhealthy. Men, at a certain period, grow fond of pleasures of the table; the omentum, hips, breasts, and hypogastrium, become loaded, while the natural hollow above the loins gives way to an ungainly protuberance. Women, mainly from their inactive lives and constitutional facility, often incur considerable enbonpoint. If the child-bearing period have passed away, additional tendencies are engendered. Corpulence and plethora rarely distinguish the savage, or, in these countries, the working man. I never saw an obese African or American; foot-soldiers and sailors are equally exempt. In England, however, fat elderly men, with a breadth of hip and shoulder rivalling the dimensions of stall-fed oxen, may be seen rolling along in almost every village.

Mason Good speaks of serous plethora with weakness, costiveness, and cold œdematous ankles; and it is quite true, indeed, that partial or local plethora may ensue with deficient, as well as over-active circulation. Barlow would associate proneness to inflammation with plethora; but this tendency may subsist in conditions the most opposite. Cerebral plethora ensues in hard students, who do not sufficiently divert the blood to the organs of locomotion: the suppression of the menstrual and hemorrhoidal fluxes, or other habitual discharges, also pregnancy itself, induce partial or general plethora. One of the first effects of good eating and drinking, it has been observed, is a feeling of vigour and energy; as the vital fluid accumulates, however, and the excretories become embarrassed, this may not only subside, but give place to one of an entirely opposite description. No mistake is more general or incorrect, than that good eating or drinking merely, confers strength and vigour. Persons addicted to gastronomic excesses are generally the reverse of vigorous. Those who live to eat, in place of eating to live, have ideas of their own on these matters. A gentleman, both corpulent and replete, told me he had no object in keeping low, as he expressed it, except in being able to hunt; life would not be worth having, were he to stint himself at the table. Another, whose abdomen was fast rivalling the dimensions of pregnancy, assured me very frankly, that he ate and drank as much as he was able. And this, in truth, is

the rule with most of those whom chill penury, or wearing toil, does not condemn per force to a rigid regimen. Young men, whose circulation is otherwise active enough, will consume succulent food and drink till blood gush reproachfully from their nostrils. Others again pursue their career, till inflexible apoplexy or chill paralysis grasp them with adamantine hand.

I cannot agree with Barlow in his commendation of blood-letting. When plethora is considerable, more especially with signs of cerebral congestion, it may be productive of temporary alleviation; but purgatives, low diet, and exercise yield more permanent and efficient relief. The difficulty, however, is to induce patients to conform to any rule of living. It is all very well to tell such to live on six pence a day and to earn it; they are too fond of the flesh-pot; their minds are too far enervated by sybaritism and indulgence, to abandon their darling habitudes. The puffing, panting, red-jowled individual, may desist awhile, from dread of fell disease; but soon as he feels relief, he resumes the cherished indulgence. If, however, he will adopt a regimen, the bowels may be well cleared out with blue, or the compound colocynth pill, followed by a neutral salt in some bitter infusion in the morning. While permitted to breakfast heartily on bread and tea, he should be restricted to very early hours, one dish at dinner, leaving off with an appetite, water the only drink, and no accessories. Supper of the lightest: a single cup of tea, with a little bread, or some kind of porridge. The purgative, if necessary, may be repeated once, twice, or thrice a week; whereby we shall get rid of the foul tongue, bad breath, and fetid excretions, the result of what Barlow justly terms excrementitious redundancy in the blood. Active and cheerful habits should be enjoined; and here the physician must side with the moralist in inculcating a worthier destiny than the brute addictions of grovelling appetite.

CLASS IV.

DISEASES OF THE DIGESTIVE ORGANS.

I—DIFFICULT DENTITION.

As there is no occasion for teeth during the first months of life, nature has deferred them to a later period. The process, usually attended with more or less local pain, is necessarily neither severe nor dangerous. In children of peculiar constitutions, however, or when there has been bad management, it may prove otherwise. Obstacles created by the gums and dental capsules, are only to be got rid of by a regular process of pressure and absorption. Sometimes children, as I twice witnessed, are born with teeth; dentition, however, as we find by instances in Smellie, Underwood, and Dugès, may be retarded for months, years even, if not for life. Very rarely the teeth are consolidated, at other times, they are anchylosed with the jaw. The two central incisors of the lower jaw, one after the other, commonly appear from the sixth to the ninth month, then those of the upper; subsequently, the lateral incisors of both jaws. When the child is a year or a year and a half old, the anterior grinders, first, of the upper, then of the lower jaw, on both sides, issue; then the eye-teeth, and, lastly, between the twenty-fourth and thirtieth months, the posterior molares or grinders, twenty in all. Occasionally the cuspidati, canine, or eye-teeth, protrude before the anterior molares or bicuspidati. Beaupréau mentions an instance of a double row of molars in the upper jaw. Sometimes the teeth are transposed; while, at others, the incisor, canine, and bicuspid are turned round, so that the labial becomes the buccal surface. The impermanent teeth remain six or seven years, and are followed by the permanent in much the same order. The cause of the absorption of the fangs, and decadence of the milk-teeth, is not exactly known. It cannot well be ascribed to pressure of the crowns of the permanent teeth, which often do not appear till long after. Indeed, four of these commonly issue before the milk teeth are shed. The form, direction, and alveolar connexions of the second set differ from those of the first. Eight and twenty in number, they receive an accession about the thirtieth year, the expansion of the jaw then permitting it, of four molars, which, as they are last to come out, are often the first to decay. Serres mentions a man in whom the lower incisors fell out, and, after some months, were replaced. Other examples of a third dentition at advanced periods, are also adduced; but, as the first set may be late in being shed, such narratives must be received with reserve. The teeth, from accident, constitutional peculiarities, or disease, disappear in

some much sooner than in others; their number and integrity, however, are commonly greatly reduced in advanced life.

Since many children gain their teeth with little or no suffering, dentition cannot be regarded as a disease; still, from various causes, dangerous complications may attend or follow it. These, in my estimation, are fully as often simultaneous occurrences as consequences. When we consider the number of dental pulps that have to be nourished and matured, it is not unreasonable, as Maunsell and Evanson remark, that some irritation should mark the passage of the tooth through the gum. Every mother knows that at such times, and long before the actual cutting of the tooth, there is a copious discharge of saliva, which relieves the local turgescence and acts as a drain on the economy at large. Sometimes the submaxillary glands swell, aphthæ of the mouth ensue, and diarrhœa. The infant bites the finger, of which the gentle friction seems to allay local tension and pruritus; hence the introduction of corals, ivory and India-rubber rings, wax candles, and the like. Oudet, indeed, thinks they flatten the alveolar edges, and facilitate the separation of the tables between which the alveolar processes develop themselves. Often children the most delicate obtain their teeth with ease, while others, strong and robust, suffer exceedingly. Fortunately the irritation intermits, absorption of the gum yielding a temporary relief, until the further advance of the tooth. Billard mentions an infant six days old, in whom the buccal membrane was natural, but the tongue and gums were swollen and red. On examination, there was evident fluctuation in the right gum of the upper jaw, arising from a black fluid blood in which the incisor teeth, and part of the unossified germs, floated freely. In another case by the same author, the right upper dental germs were completely detached. Oudet, also, relates two instances in which the dental follicles in a full-sized fetus were in a state of suppuration. Had these children lived, the milk-teeth probably would not have appeared; and were such occurrence to ensue at the second dentition, the teeth might be absent for the rest of life.

In ordinary cases, the process of dentition should not be interfered with; but, too often, the tender gums are lacerated, and opiates needlessly administered. The gums and general health should be looked after, and every source of irritation carefully avoided. Spoon-meat, if employed, should be thin, and lessened in quantity if not wholly suspended, while the nurse or mother, if robust and vigorous, should limit her allowance. Aperients, in moderation, are useful for both. Boerhaave, more than a hundred years since, summed up the treatment, by *gingivas emolliendo, refrigerando, leniendo, mollibus, glutinosis, antiphlogisticis; sæpe atterendo ad corpora dura, glabra; dissecando ope lanceolæ*. The infant should be kept tolerably, but not unduly cool: if caps be removed in winter, it will be apt to induce cold. In all things, as the sage has said, ἡ ἱατρικὴ μαλιστα κατὰ φύσιν ἐστίν. As to scarifying, there are, as Harris remarks, two periods, one in which the tooth, without swelling of the gum, endeavours to emerge from the maxillary bone, *osse maxillari primum emergere nititur*; the second, in which, having increased in size, it causes tumefaction and inflammation. Hence incisions in the first period, in order to facilitate the issue of the tooth, are merely so much useless cruelty. Superficial

scarifications are sometimes resorted to, to relieve local heat and turgor in plethoric children. When the teeth, however, are far advanced, when the gums are tense and swollen, and when a thin membrane stretches over the surface of the tooth, a free incision with the side of a common lancet, down to the very tooth, will often expedite the process, and prove productive of relief. I do not employ crucial incision, or, as the French recommend, dissect a piece out. Guersent, indeed, advises us to feel the surface of the tooth with the finger, as Hufeland once found it enclosed in a kind of bony septum which required perforation. We must be cautious, as Mackintosh advises, in our prognosis, since the tooth may be long in appearing; Van Swieten once saw a delay of eleven months after the incision. Ensuing cicatrices prove no impediment, since they generally give way sooner than ordinary structures. In a very few instances, fatal hemorrhage has resulted. The incisor teeth rarely require an operation, since, as Oordet remarks, they seem furnished with a natural opening through their capsule, *iter dentis*, which gradually dilates. The incision, as Blake recommends, in order to avoid the connecting membranes and sacs of the permanent teeth, should be made towards the external plate of the alveolar processes. This practitioner was somewhat opposed to the operation, which, in general, is safe, though hardly justifying Bell's eulogiums. Shedding of the deciduous teeth rarely induces pain or requires interference, those cases excepted in which undue retention of one or more of the milk-teeth induces irregularity or deformity. Neuralgia, chorea, and even epilepsy, with scrofulous and other affections of the eyes, ears, and cutaneous surface, have been known to ensue at this period. Boyer mentions a youth in whom excessive pain in the crown of the head only subsided with the appearance of one of the inferior molares. Bell justly reprobates removal of the deciduous teeth before the edges of their successors appear behind them in the gums, as it causes the sockets, and, consequently the arch of the jaw, to contract before the permanent teeth are ready to drop into their places. A fine boy of seven, he relates, with a well-formed maxillary arch, was taken to a dentist, who, without a moment's hesitation, removed eight firm teeth; and as the permanent ones did not appear for some months, the remaining temporary teeth had approached so close as to necessitate the removal of the four bicuspids in order to create room in the jaw! Attention to the manner in which the second set come out is the more necessary, since as Köcker, and other judicious dentists, observe, neglect on this head may occasion surprising distortion and deformity, as well as render the teeth more prone to decay. The last molares or wise-teeth, of the lower jaw especially, sometimes occasion considerable derangement, abscess, ulcers, and even caries; indeed, it often happens, as we may see by examining skulls, that they never appear. Hunter, when all other means had failed, freed a young lady from violent periodic pains in the face, by cutting down upon, and giving issue to the last molar tooth in the left side of the upper jaw. Jourdain once found it necessary, independent of dividing the gum, to remove a bony lamella, by means of a gouge, after which the tooth soon appeared.

Among other constitutional affections consentaneous with, or consequent on teething, is a species of remittent, often connected with deranged bowels, marked by hot burning surface, parched lips, and

flushed cheeks. This fever comes and goes in the most irregular manner, but, on the continent at least, has been seen sufficiently periodic to be mistaken for intermittent. It is justly remarked by Joy, that puny children in a crowded city suffer much more than those brought up in the country; indeed, the latter enjoy almost immunity in comparison. That great source of aggravation, as Clarke terms it, overfeeding, subsists less in one than the other; not that children are not often underfed, and drugged to a pernicious extent, with calomel, rhubarb, Gregory's powder, magnesia, castor oil, and laudanum. As regards the treatment of this fever, the child's nourishment, in general, should be greatly limited in amount; a light cap worn, and the little patient kept tolerably cool. It is right to avoid the excitement of light, and heated rooms, as, also, noise and bustle; the nurse, more especially, should keep herself tranquil and regular. Robust children, in the event of costiveness, or even apart from this, will be the better of some gentle laxative, as a small teaspoonful of castor oil, a little senna tea, or some calcined magnesia: time and patience will do the rest.

Cerebral complications, though less frequent, are truly severe and dangerous. Loss of sleep and the nightly wail, so familiar to parents' ears, are too common, as in other cases, to need description. The derangement of the nervous system, though it may lapse into actual meningitis, is commonly sympathetic. Pressure on the gums, and equivalent counter-pressure on the pulp, induce local irritation, which is transmitted to the nervous centres, thence reflected over the frame. Convulsions from teething, as Guersent remarks, do not ensue before the fourth or fifth months. Bright esteems them as somewhat of an epileptic character; and, certainly, they are occasionally so. I have known them to subsist on one side, also to last for a week; then, after the appearance of the two upper incisors, the gums being scarified, come on daily, about three in the afternoon, and persist till ten. The muscles both of the trunk and extremities became rigid and motionless, resembling tonic eclampsia. The last accession continued till midnight, the spasm only relaxing as the increasing bronchial rattle proclaimed the approach of death: the eyes, almost to the close, imploring a relief which it was found impossible to impart. As to the treatment of infantile convulsions, robust plethoric children will require low diet, aperients, and leeches behind the ear, or, as Harris recommends, at the angle of the jaw. Infants, however, must not be permitted to become exsanguine, which would only serve to aggravate the case, and renew, or, as I have known it to do, bring on the disease. Should spasms continue after leeching and the bath, we may make a cautious trial of antispasmodics, valerian, ether, carbonate of ammonia, and the like. In all cases, the gums should be looked to, and if the tooth be on the point of appearing, as Cheyne advises, freely divided. Cases attended with debility, in addition to other measures, will require wine-whey and chicken-broth; and, if there be diarrhoea, a drop or half a drop of laudanum. This should never be left in the hands of nurses, who often poison children with it, in order to lull their cries, and procure rest for themselves. I was twice sent for to infants, from this cause apparently comatose, and with some difficulty brought round. Nature sometimes establishes a spontaneous drain behind the

ears, and the practitioner may imitate it by ointment of tartarized antimony or Spanish flies. In such cases, the parts should be gently handled, washed every morning with tepid milk and water, and dressed with mild ointment, or, if we wish to heal, a scorched rag or one dusted with starch. At this period, various rashes or gums appear on the surface, and further serve as revulsives. The enlarged cervical and submaxillary glands, and scrofulous ophthalmia popularly ascribed to the eye-teeth, are evils great as those they are supposed to correct. Diarrhœa, whether natural or induced by art, is useful to robust plethoric children; but, in the case of the weak and debilitated, should not be allowed to go too far. For, as Maunsell and Evanson observe, we are not to let children die of vomiting or purging because they happen to be getting teeth. I have seen excessive exhaustion on the score of this fallacious plea, and the ill effects of which, laudanum, kino, chicken-broth, and warm clothing, did not always suffice to reverse. Generally speaking, diarrhœa does no harm so long as there is fever, but when this subsides, let the former be checked. Should enteric inflammation, which, however, rarely happens, ensue, we may resort to leeches, counterirritation, and the warm bath. A choleric affection, attended with frequent vomiting, greenish stools, collapse, and death, is described by Guersent and Cruveilhier. To this the latter has applied the term *maladie gastro-intestinal avec disorganization gelatiniforme*. I quite agree with Guersent, however, that the softening occasionally discoverable after death, is cadaveric. Thoracic affections are no ways uncommon in spring and winter. So far as they are slight, or what some would term sympathetic, we need not be uneasy; but once they seriously implicate the pleura, bronchial membrane, or pulmonary parenchyma, leeching, counterirritation, and antimonials are stringently indicated. I have had occasion to witness the destruction of several children from this cause. These complications may be wholly forestalled or greatly mitigated by proper attention to air, exercise, food, and clothing.

II—ODONTALGIA, TOOTHACHE.

THE teeth, from their prominent position, important uses, and sympathetic relations, are very liable to disease. Morbid alterations ensue in the secernent apparatus, follicles, capsules, lining, and investing membranes of the fangs. The enamel also changes in colour, texture, and surface. In many places the teeth are artificially stained, while in others they are filed to a point, or the front ones are knocked out at puberty. The practice of substituting dead for decayed teeth, so prevalent among ourselves, is happily giving way to the employment of porcelain. Constant smoking and chowing the betel nut make these organs yellow or black; their colour in different persons in other respects is variable. I have seen the incisors worn away, as if with a file, from the inhalation of sulphurous acid gas, in vitriol manufactories. The condition of the teeth is so intimately connected with that of the rest of the economy, as to render it almost trite to observe, that in the healthy they are sound, and in the unhealthy otherwise. Constitutional

causes are probably more productive of disease, or the reverse, than all others put together. Phthisis, perhaps, is the only malady which proves an exception; yet, even here, the teeth, beautifully white as they often appear, have not the body of colour that obtains in health. In whatever manner induced, caries is the principal source of unsoundness and decay. As the teeth are only partially endowed with vitality, and liable to be acted on by various chemical and mechanical irritants, the term caries is not perhaps so applicable as in the case of other bony structures. Be this as it may, necrosis implies the death of the tooth, of which the inflammatory process, termed caries, is the precursor. It generally commences with inflammation of the pulp and nervous cord, and is characterized by that painful pulsatile throbbing, partly induced by its peculiar seat, and partly by the unyielding character of the parts, which we term toothache, and which plunges nervous and hysterical persons into despair. The inflammation is generally resolved in rheumatic and first attacks; or it may go on to the destruction of the delicate vascular connexions, and eventual death of the organ, commonly in such a manner, as to expose the internal cavity to the action of the air, as well as of the different substances introduced into the mouth. Sometimes the tooth loses its vitality at an early period, nothing remaining but the stump, which either remains passive or slowly decays; or the gums and alveolar processes are so far absorbed, as, together with a bony deposit at the bottom of the socket, to force the root out of its place, and, perhaps, lodge it horizontally on the gum. At other times the fangs are absorbed. Caries and death, from inflammation beginning in the pulp, are not always distinguished in works devoted to the subject, from the same results as consequent on chemical causes, in which erosion, proceeding inwards, induces secondary inflammation of the nervous pulp, with the consequences already signalized. Decay, Bell observes, commences in the crown, rarely the neck of the tooth, and scarcely ever the root; and is indicated by an opaque spot on the external surface, immediately beneath the enamel. Sometimes the process is so gradual, that the internal membrane is absorbed before exposure, and the tooth breaks away without any pain. It is curious that the wisdom teeth should be liable to decay, sometimes even before they cut the gum; next to these, the first molares or bicuspidis; the cuspidati and incisors more rarely incur disease. Though different points of the tooth, and every part of the crown be subject to caries, this seldom or never ensues on the labial surface. I have, however, witnessed an instance in one of the upper incisors; it is likewise depicted in a plate by Fox, in the case of a Malay, in whom the upper incisors were filed away nearly to the cavity.

Closely connected with the state of the teeth, both in health and disease, is the condition of the gums, so essential in many ways to their beauty and preservation. In one instance, I witnessed the teeth completely encrusted with tartar, which had thrust back the gums, themselves ulcerated, to the very fangs. The gums are liable to neuralgic and rheumatic affections, without apparent change of structure; also to carcinomatous, syphilitic, and scorbutic affections. Parulis, gum-boil, or oulitis is always restricted to a point, and attended with considerable redness, pain, and swelling; caries, cold, and bruises, are among the alleged causes. I have resolved this affection by leeches

applied to the gums or cheeks, in the former case secured by a thread, followed by copious stuping. Onlitis has a great tendency to suppuration; a consummation which is hastened by poultices, the matter escaping spontaneously, or by means of the lancet. When a fistulous opening leads to a carious tooth, the latter should be removed. The tumours, termed epulis, when furnished with a pedicle, are easily tied. Sometimes, as we find by Fox, they attain such a size, as to interfere with the functions of the mouth, and require the aid of the knife.

The mineral acids, essential oils, creosote, and burning the nerve, or antihelix of the ear, are employed with very uncertain success in toothache. Fortunately it is subject to spontaneous remissions, and may be suspended by the dread of an operation, or the expectation of relief. When, in consequence of the progress of the disease, the nervous pulp becomes exposed, severe paroxysms are liable to ensue. When these subside, the cavity may be cleared out, if necessary, enlarged, then stuffed with amalgam of gold or silver-leaf and mercury, which may arrest the disease, perchance for years. When caries ensues contiguous to an adjoining tooth, it is sometimes necessary, as Fox recommends, in order to prevent accumulation, to file away a portion, which may have the further good effect of suspending or preventing extension of the disease. Some submit to immediate extraction, while others suffer the tooth to decay till a mere shell remains. There is an impression more or less correct, that by leaving in the fangs, the dental arch or arcade is thereby fortified; and, certainly, unless productive of uneasiness, I see no reason why they should be disturbed. It sometimes unfortunately happens, from the circumstance of mere neuralgia or rheumatism simulating odontalgia, that teeth, perfectly sound, have been removed; a result which has likewise occurred from the extension of pain in toothache. So grievous a mistake should be carefully avoided; the aspect of a bad tooth is generally altered, and when the forceps is clinked against it, acute pain results. Here hot stupes, Cologne water, or other spirituous embrocations, may be applied; while cold should be avoided, and every means taken to allay the sympathetic affection. The narrow precincts of the wisdom tooth, when decay makes its removal desirable, sometimes render it necessary to abstract the next molar. Hemorrhage, when copious, is arrested by styptics, as alum water and compresses; and it has even been necessary to return the tooth into the cavity. An opiate plug, keeping the mouth firmly closed, relieved a lady whom I found alternately fainting and vomiting from prolonged loss of blood in the middle of the night. As regards the prevention of toothache, judicious dentists are commonly opposed to dentrifices. If any such be employed, they should be of the mildest kind, as precipitated chalk and orris root, magnesia, cuttlefish, and cochineal, or finely levigated charcoal; simple water and a soft brush, perhaps, answer best. The negroes, who have beautiful teeth, employ a piece of rattan. Some are shamefully indifferent as to the state of these important organs, while others scrub them so as to separate the gums and injure the enamel. The use of very hot or very cold drinks, also the abuse of acids, sweet-meats, and smoking, are undoubtedly injurious. It is singular, that, while the aborigines of America and Australia possess excellent teeth, the descendants of European colonists commonly display very bad ones.

III—STOMATITIS, APTHÆ, THRUSH.

THOUGH several varieties of thrush, according to the character and extent of the affection, have been created, they invade the same parts, and run by insensible gradations into each other. First, we have erythematous thrush; then white, termed by the French, muguet; also, vesicular, ulcerous, and gangrenous thrush. The habitual congestion, says Billard, under which the mucous membrane of the new-born usually labours, disposes it to erythematous stomatitis, marked by redness, heat, and, sometimes, dryness. It may extend to the whole, or a part of the mouth, while herpes labialis is not unfrequently conjoined. This writer asserts its frequent combination, a position from which I dissent, with gastro-enteric inflammation. White thrush, or thrush proper, is marked by mucous concretions or apthæ on the surface of the inflamed membrane. These are generally white, but sometimes, from exhaled blood or bile, yellow or red; and though most common in the mouth, may extend to the esophagus and intestines. The nasal fossæ and Eustachian tubes appear exempt. Apthæ vary in size from small white spots to patches that cover the tongue and buccal membranes throughout; in the last case termed confluent or malignant. By some they are regarded in the light of a false membrane or pellicle. Out of fifty cases, there was cerebro-spinal inflammation in two; of the respiratory and circulatory apparatus in twelve; of the digestive organs in thirty-two, and of the skin in four. *C'est surtout à la première enfance*, says Billard, *qu'on voit développer le muguet*. What from inferior nourishment, foul air, want of cleanliness, and the tendency of the mucous membrane to throw out pultaceous excretions, children at the breast are most liable; hence apthæ infantum. White thrush always subsists, with equal frequency, at the Hospice des enfans-trouvés, with the hot and crowded state of the wards of which, so sadly opposed to the requirements of the inmates, I have often been struck. Little creatures are frequently brought to me with the inside of the lips, tongue, and palate, covered with apthæ; their soiled limbs ill defended by sordid foul-smelling rags. Billard and Baron have seen children use the same spoon without communicating the disease; but Dugés has known the complaint to follow where a sick and healthy child were applied to the same breast.

Vesicular or ulcerous thrush, also termed follicular stomatitis, may commence in this form, or supervene on white apthæ. It first wears the aspect of small white miliary tumours or vesicles, which may heal in this stage, or lapse into ulcers, afterwards covered with pultaceous crusts, which, from time to time, fall off and mix with the saliva or food. In this affection, the curd-like specks commence at the inner surface of the lips and cheeks, whereas, in white or infantile thrush, they begin on the sides and points of the tongue. Apthæ, as here described, rarely ensue before the cutting of the first teeth. The eruption, if distinct, is seldom attended with much disturbance; if confluent, there is emaciation, diarrhœa, or vomiting; owing to which, or to concomitant affections, the child may sink. Apthæ, as Gardien observes, may disappear in twenty-four hours, or persist for weeks, coming and going in alternato crops. They sometimes appear within the margin of the anus: I have also seen them—a fact noticed by Dugés,

in the folds of the lips, and on the mucous membrane of the vulva. Numerous deep aphthous ulcerations are recorded by the same writer, as occurring on the inner surface of the cheeks in scrofulous subjects in the Hôpital des enfans-malades: I have likewise observed such—the *apthæ adutorum* of Bateman, on the cheeks and gums of persons at different ages, cachectic individuals, and those far advanced in phthisis. Røderer and Wagler mention their appearance in the fever epidemic at Göttingen; Ketelaer, also, a Dutch writer, witnessed them at the close of one tenth of the fevers in Zealand.

Effused blood, or the decomposed pultaceous matter, may put on the aspect of gangrene; which, however, occasionally takes place both after white and ulcerous thrush. In the latter case, the sores increase with phagedenic ulceration and sphacelus of the adjoining parts. Dugés has observed gangrenous ulcers on the interior of the cheeks, gums, vulva, anus, scrotum, and penis. They cannot be looked on as peculiar to thrush, since something similar is witnessed after measles, small-pox, and angina maligna. Richerand has described it under the title of charbon; Cuming, as sloughing ulcer of the gums, lips, and cheeks; Dease, as gangrenous erosion of the latter; Burns as noma, and Hamilton as water canker. There seems complete impairment of the vital processes, with pain, heat, redness and swelling, followed, perhaps in a few days, according to Philips, by mortification of the gums, cheek, tongue, and even caries of the bones of the face, with a foul, sanious, acrid discharge, low small pulse, diarrhœa, cold extremities, sinking, and death. Hamilton witnessed the disease in children, and even adults, living in a foul atmosphere, ill clothed, and worse fed, in one instance, with destruction of the maxillary and palatal bones, leaving a vast chasm, in which the tongue and throat were conspicuous.

In the treatment of thrush, we must keep it in view to lower excitement when excitement subsists, to stimulate the sinking powers in case of debility, and to deal with complications according to their nature. Most cases are attended with some glaring error of regimen in nurse or child; so that by means of strict cleanliness, frequent changes of linen, fresh air, warmth, and adequate nourishment, the affection may often be subdued without local measures. Deficiency of milk must be remedied by changing, if possible, the nurse. Mothers too often are harassed by a thousand disquietudes, which implicate the well-being of their offspring. Every one knows how adverse bringing up by hand always proves; foundling-hospitals are dens of mortality. Simple erythema of the mouth requires little local interference beyond the occasional exhibition of a little barley-water or sweet almond emulsion. Dewees conceives that irritation is relieved by infusion of the slippery elm bark, *ulmus fulva*. The effects of over-feeding, on the part of mother or child, will be remedied by a smaller allowance of food, and the use of aperients. Should erythema be symptomatic, it will disappear commensurately with subsidence of the primary affection. In the case of white thrush with pultaceous effusion, whether distinct or confluent, the mouth may be occasionally cleansed with some mucilaginous fluid, as milk, barley-water, or infusion of mallows, employing a plummet of lint or the finger. Guersent recommends a fourth of chlorine liquor to the fluid made use of; but some prefer alum or borax water, or the solution of white vitriol. In every case, scouring out the

mouth, perhaps till it bleed, with the corner of a towel dipped in borax and honey, is to be deprecated. Dewees speaks well of powdered borax and loaf sugar, a small pinch three times a day projected into the mouth; should crusts be often renewed, or the parts shew a tendency to ulcerate, he esteems the decoction of bark a certain remedy. Dugés is an advocate for vegetable acids, oxymel and the like, much diluted. In the event of prostration, we may give negus, wine whey, chicken-broth, syrup of bark, and, should the state of the bowels require it, very small portions of the tincture of opium. Sometimes a bath is expedient; and I have often found a few grains of mercury with chalk and rhubarb internally, serviceable. Should the rectum be affected, the parts may be bathed and anointed with a little lard: oiled butter, in teaspoonsful internally, is recommended by Dewees; almond oil, with syrup of pale roses, by Dugés. The latter finds ulcers in the mouth to heal immediately after contact with a crystal of the sulphate of iron, or even of the nitrate of silver; burnt alum has been employed with the same intent. Two or three drops of diluted sulphuric or muriatic acid, in mel rosæ, answer very well. In gangrenous apthæ, cauterization, with the butter of antimony, nitric acid, or equal parts of muriatic acid and honey, may be freely practised; also lotions of the chloride of lime or soda, some have even resorted to the actual cautery. Wine, brandy, soups, with the carbonate of ammonia, and opiates, will be required, to restrain diarrhœa, or allay restlessness. As copious sloughing may be followed by recovery, we should never despair; the prognosis, however, is most unfavourable.

IV—GLOSITIS.

INFLAMMATION of the tongue is oftener symptomatic than idiopathic; in either case, however, it may prove both formidable and severe. The tongue, so far as its investing membrane is concerned, participates more or less in all the affections to which the mouth, throat, pharynx, palate, uvula, and tonsils, are liable; accordingly, we find it inflamed in scarlatina anginosa and maligna, as well as in the different forms of cynanche; in a few instances, as in malignant anthrax, gangrene has been known to ensue. Glossitis may be superficial or profound; and the inflammation end in resolution or suppuration. The symptoms are local heat, pain, swelling, inducing a sense of constriction, and even of strangulation. Speech, swallowing, and respiration, are rendered very difficult; while the face becomes turgid, perhaps livid, with hot surface, hard, full, quick pulse, headache, and loaded urine, all ensuing within the course of four or five days. Kerr mentions a boy of nineteen, who complained of pain in the head and throat, with dysphagia and cough. The tongue red, rigid, and hot, occupied the whole cavity of the mouth, so that the patient could neither articulate nor swallow—the sublingual glands and tonsils were swollen. A sour copious perspiration came on in the night, after which the swelling and fever subsided.

Glossitis is usually induced by excessive salivation and the operation of animal and vegetable poisons. Dupont mentions a peasant who was

seized with the disease after the disgusting feat of chewing a toad. The treatment consists in bleeding, aperients, and the tartrate of antimony, so as to make the patient throw off, with leeches to the part. The decided advantage derived from deep incisions, borne out by their similar utility in phlegmonous erysipelas, renders them expedient in every case that does not promptly yield to the measures already specified. A couple of free incisions, as recommended by Marjolin, and first practised by Meckren, may be made from the base to the point. The disgorgement soon relieves the suffering organ, and reduces the incisions to linear dimensions. Should matter form, the same procedure proves equally efficient. Mr. Orgill's case in the Glasgow Medical Journal, in which incisions were carried to the depth of an inch and half before the pus was discharged, affords an instructive illustration.

The tongue is further liable to various injuries and mischances; it has even been torn out in man and brute, often without serious hemorrhage, and sometimes with partial suspension only of the power of speech and deglutition. Recently, it has been made the subject of a most unjustifiable operation for the cure of stammering; an affection which, as I have shewn in my monograph, in nine cases out of ten, is a mere error of habit or want of consentaneity between the continued act of expiration and those positions of the organs impressing the outward current of air, productive of speech. Chronic enlargement, *lingua vitulina*, *lingua pendula*, is sometimes congenital. Marjolin thinks it may be induced by the childish practice of pulling the organ, also by copious repeated salivations. The only remedy appears ablation. *Ranula*, the *grenouillette* of the French, usually occurs in children; I have seen it in birds, as parrots. It is in the form of a soft, flat, semitransparent tumour, sometimes with a central line of depression, situated in Wharton's ducts, under the anterior portion of the tongue. The contents, probably the inspissated saliva, white and glairy, should be evacuated with a lancet, since the omission has caused the teeth of the upper and lower jaw to be thrust out of their places, speech and deglutition becoming alike impracticable. Should a calculus obstruct the duct, it must be detached with a probe, while the orifice is kept open. A slight incision depressing the point of the scissors, so as to avoid the lingual artery or vein, is all that is necessary when the *frœnum* or *frœnulum* is unduly prolonged. Should hemorrhage unhappily ensue, the tongue must be bound down by a bandage under the chin, a precaution which further averts swallowing of the point and consequent suffocation. Continental midwives kept a sharp coin, or allowed the nail of the little finger to grow for the performance of this little operation, once universal. Adhesion of the dorsum to the palate, requiring the introduction of a spatula or paper-cutter, perhaps congenital, or from keeping the child too long from the breast, is sometimes met with. Cancer, whether pedicular or encysted, may occupy the margin, surface, or extremity of the organ. Indolent and slow at first, it augments rapidly, inducing shooting pains, ulceration, and offensive sanious discharge, hectic, exhaustion, and death. When the disease occupied the point, Boyer cut away the affected portion in the form of a V reversed, the incision healing with a linear cicatrix. Chancre, whether primitive or consecutive, must not be mistaken for cancer,

any more than ulcers from carious teeth and other causes. The epithelium is liable to various discolorations and subinflammatory affections, sometimes vesicular, at others tubercular; so far as I have seen, connected with some derangement of the digestive organs or general health. The tongue is likewise obnoxious to paralysis, neuralgic pains, and even spasmodic action. In a patient of mine, when assailed by any thing depressing, as a miscarriage, a fit of illness, or prolonged agitation, the tongue forthwith became sore and discoloured, while it was agitated in a surprising manner, often wholly beyond control, and so as to impede both deglutition and utterance. After being of long standing, I removed this affection by means of large doses of the carbonate of iron, and strict attention to the general health.

V—CYNANCHE.

INFLAMMATION of the throat may be common or specific: the former from cold; the latter, as ensuing in measles, small-pox, and, more especially, scarlatina. Tod mentions the singular instance of a gentleman who could not hear a saw sharpened without an attack of inflammation of the fauces. Angina membranacea, pellicular inflammation, or diphtheritis, sometimes, though rarely, extending to the esophagus, trachea, and larynx, is neither more nor less than scarlatina anginosa or maligna. Cynanche may even implicate the whole throat—angina universalis; more commonly, however, it affects a part. Cynanche tonsillaris, as Velpeau observes, is sometimes confined to the surface, while at others, the follicular submucous and interfollicular cellular tissue is affected. Both glands are usually engaged; sometimes inflammation extends from one to the other, or it may affect one alone. On looking into the throat, the parts, palate and uvula inclusive, are seen red, tense, and swollen, often covered with a viscid mucous excretion, and, perhaps, approach so closely as to leave little interval. Sometimes the uvula is thrust forward, at others, quite back out of sight. There is considerable general fever, dyspnoea more or less considerable, and dysphagia. The patient slavers at the mouth and is constantly hawking up viscid mucus; should he try to pass it downward, darting pain, constriction, and sometimes return of fluid by the nose, forbid the attempt. The voice is greatly altered, perhaps lost. Tonsillitis may terminate in resolution, or go on to suppuration, in which case the pain becomes dull and gravitative, while the tumour grows soft, and is even seen to point. Matter commonly finds issue for itself, the evacuation being accelerated by hawking or coughing; and patients who could neither speak nor swallow, now do both with comparative facility. The orifice, after a variable, sometimes fetid discharge, cicatrizes, and the disease, of from one to three weeks' continuance, disappears. The pus, almost invariably, makes its exit by the mouth; but Londe mentions an instance in which it formed a fusiform passage along the arterial and venous trunks into the chest, thero inducing inflammation and death. Gangrene is adverted to by Sauvages, Guersent, Renaudin, and others: it is, happily, very rare. Chronic enlargement, of a scrofulous character, is sometimes witnessed; and when aggravated by

successive inflammations, may prove the source of serious inconvenience. Dupuytren, in such cases, has seen the shoulders grow round, the ribs flat, and the chest hollow, from the impediment to the respiration; and I once met these changes, arising from the patient's inspiratory efforts, under similar circumstances, with the addition of a thick and husky voice. Young subjects are very liable; and some experience attacks, more or less severe, almost every year. As for specific tonsillitis as in scarlatina, it may come on at any age. The follicles or lacunæ of the tonsils are liable to chronic irritation. In a female singer, the excreted masses, which she preserved in a bottle for inspection, varied in size from a small shot to a pea, and were of a fetid odour. Monro mentions ulceration of the tonsils which remained incurable till some calculi were extracted; they may also prove the seat of chancre. Dupuytren once evacuated, by means of a bistoury, an hydatid or acephalocyst, capsule and all, from the left tonsil.

Angina pharyngea or pharyngitis, the quinsy, or esquinancy of old writers, may extend to the soft palate, uvula, and tonsils, or even the glottis and trachea. It is less frequent than cynanche tonsillar. When the upper portion of the pharynx, perhaps the velum and uvula, is implicated, the parts opposite the superior cervical vertebræ are red, shining, tense, and covered with a viscid greyish mucus, which must not be mistaken for ulceration. Deglutition is painful, though not to say difficult. Inflammation of the inferior portion of the pharynx, as Chomel and Blache observe, is much less frequent than of the upper. Severe pain is felt low down, opposite the larynx; food appears to rest there, and the patient cannot swallow without great pain. The voice and breathing, in both cases, are unaffected. Pharyngitis usually terminates in resolution, or matter may form in the velum, uvula, superior or inferior pharynx. Tweedie relates an instance in which abscess in the latter destroyed the patient. Intolerable distress, as Porter remarks, may be induced by pressure on the larynx and trachea, and the resulting dyspnœa, restlessness, and strangulation. Matter, however, generally escapes in some days, either spontaneously or during the act of swallowing, with proportionate relief. Cynanche esophagitis I have never met with; the food, it is said, returns when it comes in contact with the inflamed part. Inflammation, however, may ensue from wounds, also from poisons. How often stricture, spasmodic cases excepted, results from esophagitis, I cannot say. Here, the morsel is thrown back—there is dysphagia. Abercrombie mentions an instance, about four inches below the pharynx, in which the disease having lasted nearly a year, was overcome by an egg-shaped silver ball attached to a wire of the same material, in place of the ordinary bougie or probang. In one case, notwithstanding every expedient, the passage became narrower and narrower, till the patient—a lady, who could no longer swallow even fluids, died a melancholy spectacle, of inanition, in full possession of her faculties. I have seen spasmodic stricture, dysphagia, and aphonia, in hysterical subjects, last for hours and days, and go off spontaneously at last.

Cynanche parotidea, parotitis, or mumps, is common, particularly in children. After puberty, I have met with it oftenest among females. It is frequent in and after continued and eruptive fevers, and has been affirmed contagious as well as epidemic. Certainly it will run through

families, an instance of which is now under my observation. Usually acute, it may become chronic, in strumous cases more especially. It may end in resolution or suppuration; but, in the latter case, matter is not so much the product of the gland as of the inflamed contiguous cellular tissue and fibrous envelop. Sometimes the swelling fills up the whole interval between the neck and jaw, creating a painful sensation in the ears; and, from the pressure, a thick, husky voice, giving the face, when both sides are affected, a disagreeable expansion. I have known persons in fever to perish, apparently from the severity of the inflammation, which, according to some, extends to the meninges, but idiopathic parotitis may be so slight as to attract little attention. Why the parotid should be affected so much more frequently than other salivary glands, its great size and position excepted, we cannot say. After exposure, the patient complains of rigors, followed by general reaction, with local pain, heat, and tension. In the event of resolution, the parts soon recover their natural tone, while all local and general uneasiness disappears. Parotitis may manifest a sudden subsidence, coincident with the supervention of inflammation in the mammæ, labiæ, or testicles. Sometimes the phlogosis having migrated to the testicle, may re-ensue in the parotid; an occurrence which, as Begin observes, may take place oftener than once.

In the treatment of cynanche tonsillaris, if the individual be sufficiently vigorous and plethoric, we may resort to general and local depletion, one or both, with antimonials, aperients, diluents, and low diet. I have sometimes been able, by venesection and antimonial emetics, to put back tonsillitis; but once it proceeds a certain length, though the disease pursue a mitigated course, this becomes impracticable. The application of leeches, in women at least, from the scars which they induce, is objectionable; I may say, with Bianquin and Chauffard, that I have rarely seen them productive of advantage. I once knew them, by wounding one of the superficial veins, to induce copious hemorrhage; this, however, I readily overcame by means of nitrate of silver, resolution following. Broussais, Crampton, Barry, and others, recommend leeches to the tonsil itself; a procedure readily accomplished by means of any small tube, as of paper, and a string passed through the tail. I have scarified the part with a muffled bistoury. To blisters I seldom resort; but I find the constant application of a warm poultice or cataplasm of great utility. The inhalation of the vapour of chamomile infusion soothes the parts, and attenuates the viscid mucus, to which end tepid diluents are further conducive. Infusion of senna with neutral salts, warm castor oil, or a dose of calomel in syrup, will serve to evacuate the bowels. Antimonials in all stages of tonsillitis, are excellent; they lower excitement and local turgesence, as well as facilitate the discharge of saliva: indeed, an early emetic will often put a material check to the progress of the disorder. In a case of double tonsillitis, the glands in actual contact, with extreme distress and sense of suffocation, I got the patient, after some difficulty, to swallow a teaspoonful of antimonial wine, which acted as an emetic, and, with other means, induced great and permanent relief. In the event of matter forming, some practitioners would puncture; generally speaking, however, it finds a vent for itself, oozing out of the different lacunæ. Indeed, as Elliotson observes, it is often difficult to say whether sup-

uration have ensued or not. In the case of a gentleman, inflammation migrated from the right to the left tonsil, the part becoming tense and swollen, at the end of the week. As no purulent sputa had ensued, a lancet, overlaid with paper to within a quarter of an inch of the point, thrust in, was followed by a copious gush of matter and proportionate relief. Chronic enlargement has been treated by means of gargles, iodine, and other remedies, with little advantage; the general health, however, is benefited by the shower-bath, along with a stimulating regimen, and exercise in the open air. The nitrate of silver, fixed in a quill, or port-caustic, on a level with the orifice, and pressed firmly, for a few seconds, at intervals, on different points of the gland, will cause small eschars to be detached, the enlargement being gradually subdued. Hypertrophied tonsils have been removed by the knife, at least in part, for no practitioner would venture on their extirpation. Beclard, indeed, mentions an itinerant who wounded the internal carotid, with fatal consequences, in the attempt. The operation requires precaution in other respects, since Moscati nearly lost a patient by suffocation induced by the detached portion, which he had separated with one stroke of the knife, falling into the superior opening of the larynx. To guard against this, Marjolin has invented a kind of forceps to be applied before operating. Any slight hemorrhage is obviated by astringent gargles. Ligatures appear to have fallen into disuse. Moscati had a patient who was placed in some danger owing to the swelling thus induced, and which was only averted by the timely application of the knife.

The treatment of pharyngitis will be regulated by the capacity of the patient and severity of the disease. Bleeding, local and general, antimonials, aperients, and stupes, are useful here as in tonsillitis and parotitis. Mild cases, beyond antimonials, aperients, diluents, and low diet, require little or no interference; but when the disorder proves severe, the most stringent measures become imperative. Here, Chomel and Blache assert that death, preceded by excessive anxiety, continual dread of suffocation, inappeasable thirst, quick small pulse, and swollen extremities, may take place in the course of a few days, and even twenty-four hours. The great thing is to commence early with our lancet, our leeches, and our emetics, so that the disease may not get beyond our grasp. Sloughing and ulceration rarely or never ensue in common pharyngitis; as for what has been termed relaxed sore throat, a dry fortifying regimen, with flannel next the skin, exercise, the shower-bath, and Cayenne lozenges for those who please, are our best remedies. In the event of abscess, obvious to inspection and tangible under the finger, a bistoury, wrapped round nearly as far as the point, employing the finger as director, may be introduced exactly in the mesial line, so as to avoid the vessels on either side, after which, the contents are expelled by coughing or vomiting. Sometimes the nail, as in children's cases, has answered for this purpose. The necessity of the practice is undoubted, for examples are recorded by Moreau and others, of those who died suffocated, owing to the pressure of enormous abscesses. Should the purulent collection, however, prove inaccessible, or should it not point internally, we are to observe whether it manifest itself externally. If we resolve on making an incision, we are properly advised by Berard to avoid the

direction of the primitive carotid, the line of which may be pointed out by an assistant; and to divide the tissues, layer by layer, as we would proceed in the operation for hernia. In the event of abscess, pointing externally or not, pressing on the larynx or glottis, Porter practises an incision, on the principle of matter finding its way to the surface by the route of the least resistance. In his first case, it was made in the side of the neck; next day, the abscess burst into the wound. In another, in which matter seemed lodged between the trachea and esophagus, an incision along the median line of the neck, laying bare the lower part of the larynx, and three upper rings of the trachea, was followed by a similar result. Instances have occurred, as in one by Mr. George Bell, of abscess being ruptured by passing down a canula or bougie, on the presumption of stricture. There are others, likewise, in which coughing or even laughing, the latter being accidentally or purposely induced, has proved equally fortunate. Sometimes an ulcerated opening slowly forms. In many cases, the irritation of foreign bodies, as fish and other bones, fragments of pipes, if these be not extracted or forced down, has caused purulent formations, sometimes attended with fatal results. Pins and needles generally find their way out. In one case, Petit extracted a pin which had got as far as the shoulder. It is well known that these and other bodies in the throat should be extracted or pushed down. A lady at my own table was thus threatened with urgent suffocation, which I fortunately relieved on the spot by one of Weiss's probangs. A popular, and far from useless remedy, is to clap the back soundly; and La Motte gives an amusing instance of its success. The patient, however, in illustration of a sensation remaining when the cause is removed, sometimes conceives that the foreign body is persistent, when, in reality, it has taken its departure. In parotitis, the patient should be kept warm, and cold applications carefully shunned. Slight cases will be benefited by mild aperients and diaphoretics; severe ones, by emetics with local and general depletion, poultices, and warm stupes. Neumann speaks well of emetics with a mercurial plaster containing an eighth of the hydriodate of potash. In the event of retrocession, sinapisms may be locally applied; but, so far as the brain was supposed to be concerned, I have not found them useful. Hamilton mentions atrophy and wasting of the testicle as results of metastasis.

VI—GASTRITIS, GASTRALGIA.

* It has been asserted on the continent, and repeated in this country, that inflammation of the mucous lining of the stomach and intestines was not only frequent in itself, but that it formed the basis of numerous disorders; hence the undue importance attached to partial injection, accidental discolorations, local ulceration, and even cadaveric changes. Gastritis from poisons, or muco-enteritis as connected with dysentery, furnishes no evidence as to the frequency or the reverse of idiopathic inflammation, the rarest of diseases. Acute gastritis, says Abercrombie, is described by all systematic writers, but it is very difficult to find an idiopathic example of it in the records of pathology;

the stomach rarely displaying marks of inflammation, though organs closely connected with it have done so. Even this writer, in my opinion, goes too far, in admitting the existence of chronic gastritis, apart from scirrhus or ulceration. I have carefully perused the writings of Broussais and those of his adherents, Begin, Boisseau, Roche, and others; but observation and reflection have alike convinced me, that maladies so numerous and diversified could not result from one and the same pathological condition. Vascular appearances in the stomach, as Abercrombie and Yellowly remark, are frequently mistaken for inflammation; and I have repeatedly observed their traces, where the slightest evidence of inflammation did not subsist in life. Nothing short of change of structure the most decided should be relied on, and this does not occur. I have, indeed, found the stomach reduced to pulpy shreds, but this was a cadaveric change. Inflammation does not constitute dyspepsia, pyrosis, or gastrodynia; although these functional lesions may accompany chronic organic disease. Gastritis, indeed, may ensue from ingestion of acrid poisons. I have known instances, one of them fatal, from unthinking young men drinking the dilute sulphuric acid of the shops, in place of water. I have also met with those induced by arsenic and corrosive sublimate, usually characterized by intense burning pain in the stomach, on which the sufferer cannot bear the slightest touch, constant vomiting, unappeasable thirst, hiccough, cold extremities, and death. I shall never forget the loss of a fine boy, the delight of his parents and friends, from swallowing a combination of arsenic, butter, and sugar, as employed to poison rats. Much delay ensued, and when, six hours after, I saw the child, the hue of death was on his features. Corrosive poisons occasion irritation, injection, sanguineous effusion, and even gangrene. The inflammation, as Hunter and Home remark, is oftener diffused than local. In fine, as Orfila has stated, corrosive poisons induce general inflammation of the digestive canal, with destruction and separation of the mucous coat. Drunken sailors, insane persons, jugglers, and others, have been known to swallow knives, daggers, and the like: Gruner has written a treatise on the subject. Orfila mentions a man who had, in this way, disposed of twelve knives and several watches. In Beckher's instance, *De Cultrivoro Prussiaco*, the knife was taken by incision from the stomach. Not only winged insects, but frogs, snails, lizards, and leeches, sometimes remaining alive for a considerable time, have found their way into this viscus. Fistulous openings, from wounds and other causes, sometimes subsist for years. Circand describes one induced by falling on a stone, which lasted seventeen, and Wenker, another, in a girl, of twenty years' standing. Richerand mentions the occurrence from abscess after a fall, Percy another from a gun-shot wound; and recently, we have an example by Beaumont.

Gastro-malaxis, gastro-malacia, or entero-malacia, has been esteemed by Louis, Cruveilhier, and others, an idiopathic disorder. It is often witnessed in children, as by Gairdner in the *Edinburgh Medical-chirurgical Transactions*; it is also adverted to by Bright in his *Reports*. On examining a man who died from injury of the head—the case is reported in the *Lancet*, I found the whole mucous lining of the stomach, white, soft, and detached, while the muscular coat, diaphragm, and contiguous pleura, were alike eroded and perforated. Soften-

ing has been divided into an alleged inflammatory species affecting the mucous membrane: the other, the *ramollissement gélatiniforme ou pul-tacé*, of Cruveilhier, extending to the muscular and peritoneal coats. Hunter and Carswell, however, esteem it cadaveric; while the latter, along with Wilson Philip, has produced it at pleasure in rabbits, and herbivorous animals, killed by violence; and Burns found it in a subject two days after death, when the parts on first examination were sound. In other respects, Cruveilhier has witnessed it in the upper portions of the stomach, the esophagus, and intestines. Recent erosions, according to Dalmas, are small and superficial. As the mucous membrane, with its villi, is destroyed, the cellular, then the muscular, lastly the serous tissue is laid bare; after which, perforation. Large ulcers, few in number, small ones, comparatively numerous, are usually most frequent in the vicinity of the cardiac and pyloric orifices. Abercrombie gives the instance of a lady in whom the greater portion of the arch of the stomach was destroyed. Ulcers may subsist in life, as in the case of Talma and Berard, without being suspected. They also heal up and cicatrize; in which case they are covered with a rugous membrane. In the event of perforation, life is sometimes preserved, as we see in a case from Delpech, by adhesions with the neighbouring parts, as the liver, spleen, pancreas, diaphragm, and intestinal surface of the abdomen. Otherwise, the contents of the stomach are effused into the abdominal cavity, sometimes, owing to previous adherence, into the duodenum or colon. Perforations vary in size from that of a split pea to a sixpence, and look as if punched out. Gastrectosis may subsist in persons whose sudden death, in the midst of apparent health, has led to the supposition of poison. Darcet, father of the chemist, we are informed by Chaussier, after dining out, experienced violent pain in the stomach, ending in prostration and death; on examination, an opening the size of a lentil, was discovered in the greater curvature of the stomach. A healthy looking girl, while at work, says Abercrombie, was seized with excruciating pain, sickness, and vomiting; the belly became tender and tympanitic, the pulse feeble and rapid, death ensuing in the night. Peritonitis, with a puriform coating on the bowels, also a round opening the third of an inch in diameter, in the smaller curvature of the stomach, were discovered. A retired military man, whom I knew, was seized with mortal pain and sickness while out riding. He could barely reach home and dismount. His death, which was preceded by brief, but violent indisposition, revealed perforation and peritoneal effusion. Similar instances are described by Bonetus, Morgagni, and reported in the works of Orfila, Christison, and others. Indeed, the whole mucous surface, from the esophagus to the rectum, is liable to ulceration and perforation. Thus, Lévillé relates the case of a youth, who, six months after the bite of a dog, grew delirious, and died in great suffering; and in whom there was perforation in the esophagus, with effusion into the posterior mediastinum. The fluid contents of the stomach may be effused and mixed with the usual products of inflammation. A case is mentioned in Horn's *Archiv* of a girl of eighteen dying after twelve hours' illness, in whom a milky serum occupied the peritoneal cavity; and another in Rust's *Magazin*, by Wittke, in which two small perforations were found near the cardia, but with little or no fluid. Baillie, De Claubry, and others, have

detected lumbrici in perforations of this kind, while Heister and Cramp-ton have seen them in the peritoneal cavity. Rupture of the stomach, from external violence, as in an instance by Portal, also from excessive vomiting, has been known to ensue. Among other results of ulceration is hemorrhage. This may likewise arise from simple exhalation. When blood is vomited, the term hematemesis is usual; expelled downwards, it is melæna, from the colour. These affections are commonly combined, dark grumous blood being discharged up and down for days together; while the expression melæna was long employed, and still is by some, to designate both. If thrown up soon after effusion, the fluid is of a ruddy hue—I have seen it clotted in children; if retained for some time, it assumes, on expulsion, much the aspect of coffee-grounds. A merchant, says Abercrombie, being assisted home, discharged an inky fluid from his stomach and bowels. On the fourth day, he vomited four pounds of pure blood, then became faint, pale, cold, and died in the night. Here there was a fungoid ulcer in the small arch of the stomach, midway between the cardia and pylorus. Hematemesis and melæna may be single or combined. I have witnessed both in the last stages of a fatal case of acute rheumatism, and in another equally fatal, of prostatic disease. In a lady under my care, there had been for some years vicarious menstruation, occasionally from the stomach, at other times from the rectum. The discharge, at times, would come on without any warning, and, perhaps so copiously, as to induce delirium, local pains, and anemic reaction. A slop-bowl full of it, which was kept for my inspection, resembled faintly-coloured size. This, however, could hardly be termed a case of melæna. Disease of the heart, obstruction to the portal circulation, and blows, may all prove productive of gastric hemorrhage. Mackintosh gives a singular instance in which the blood was derived from a vomica in the lung, communicating by a fistulous opening with the esophagus.

The stomach is liable to morbid thickening, simple hypertrophy of the muscular, and round mamillary eminences, which Andral refers to hypertrophy of the mucous coat. Examples of distention, however, in which this viscus reached the ilium, are on record. One is related, by De Haen, in the person of a Dr. Erndle, likewise one by Andral, in which it actually descended to the pubis. Instances of this description, sometimes from the fluid present, improperly termed hydrops ventriculi, are most frequent in excessive eaters. Morgagni mentions simple, Baillie hour-glass contraction; neither, however, must be applied to the natural coarctation common after violent or sudden death. Scirrhus, cephaloma, or cancer, is most usual in the pyloric valve, or parts immediately contiguous; it may occupy the anterior or posterior walls, the cardia, the larger, but more frequently the smaller arch. Sometimes it extends to the liver, pancreas, diaphragm, intestines, and mesenteric glands. Hard, grey, and fibrous, it has been termed scirrhus; collected into cells, with a jelly-like aspect, colloid by Laennec, gelatiniform by Cruveilhier; when soft and white, like brain, medullary sarcoma by Abernethy, by Hey and Wardrop bleeding fungus; forms, however, which, as Carswell and others remark, run into each other, and are often met with in the same or different organs simultaneously. It may otherwise be tuberiform or globular; in white creamy stratiform patches in the subserous cellular tissue; ramiform in the molecu-

lar structure of organs, and in the blood. The veins of the stomach, likewise the coronary veins in which they terminate, and even the abdominal division of the vena porta, the lymphatics and lacteals, have been seen occupied with carcinomatous matter by Reynaud, Velpeau, and others. Cancer, which may subsist in a variety of organs at the same time, is divided by Recamier into diffused tumours and ulcers; Bayle even went so far as to enumerate nine species. Gastric cancer is attended with general uneasiness and shooting pains, vomiting and indigestion more or less urgent. Sometimes the stomach retains one kind of food and rejects another; sometimes, again, nothing will lie; hence, frightful marasmus, and that straw-coloured hue so indicative of the ravages of malignant disease. As the complaint advances, ulceration, and perhaps hemorrhage, marked by dark grumous discharges, ensue. To this last, when it subsists, Rostan attaches considerable diagnostic importance. Absence of vomiting, as Ferrus remarks, is indicative of unobstructed pylorus; but, as Andral and he observe, extensive ulceration may subsist with little derangement beyond simple anorexia. Chardel gives cases without vomiting at any time, and Cruveillier mentions an old man who had neither nausea nor vomiting, though he died with a huge gastric eschar. Haughton remarks, but the exceptions are frequent, that vomiting ensues shortly after deglutition, when the cardiac orifice is diseased, but not till two or three hours after, when the pylorus is engaged. In the latter case, a tumour is often detected to the right of the mesial line, about two inches below the margin of the last rib; it may, however, be bound down, or retire so as not to be felt; and Abercrombie, among other instances, mentions a gentleman with scirrhus pylorus the size of an orange, in whom, short of occasional pain and vomiting of blood, every other symptom, hardness inclusive, was absent. Indeed, examples, some of them fatal, still more extraordinary, are related by Roux and others, in which symptoms referred to cancer have been found to subsist without any change of structure in the stomach whatever. As the disease advances, marasmus and discoloration increase, hectic ensues, and the worn-out, attenuated patient, at last quietly expires. The common course of cancer is inwards; but it may break through the abdominal parietes, or implicate the neighbouring viscera, the cavity of the lungs, peritoneum, and colon. Cases are recorded by Chardel and Cayol of softening and erosion of the vertebræ. Cancer of the stomach, observe Bayle and Cayol, in their excellent monograph, rarely ensues before five and twenty, nor is it frequent till a more advanced period. Wardrop, however, in his treatise, while Cooper and others have published similar instances, mentions that twenty out of five and twenty cases of fungus hematodes of the eye, occurred in children. Women, it has been alleged, are more liable than men, but the former are most apt to contract this malady, in the mammæ and uterus, at the cessation of the menses; whereas, the latter, as in the stomach, lips, and testicles, are subject at every age. Some esteem it hereditary; thus Deshoulières and La Vallière, with their respective daughters, are said to have died of it. In predisposed persons, blows, to which Chardel adds pressure, may prove occasional causes; but I do not find that tanners, hatters, or shoe-makers suffer more than others. Depressing passions have been alleged, but while they are common, cancer is rare.

Melanosis, that dark discoloration, whether encysted or infiltrated, is often conjoined with cancer; and, as remarked before, is probably a modification of this malignant degeneration. The stomach is further liable to morbid growths, which derange its functions; also to actual disease or sympathetic derangement, extending from vicinal parts, the omentum, liver, spleen, and pancreas.

As regards functional disorders, cramp or spasm of the stomach, the *Magenkrampf* of German writers, is frequent and urgent in the second stage of cholera; it is not unusual in hysteric females; in the summer and autumnal months of the United States it is a common, excruciating, and dangerous disease. In such regions, as well as during our hot months at home, occur those cases of sudden death, from the incautious ingestion of very cold fluids when the body is heated. Their progress seems much too rapid for any thing like inflammation: the nervous energies of the great centres of life appear to undergo excessive, often irremediable, prostration. I never failed to observe one or more deaths weekly, set down to the account of stomach cramp, when in New York in 1826. I even experienced a serious attack myself from incautiously participating of some not very ripe peaches with melon after dinner. The excessive heat, from sympathy of the stomach and skin, appears to impair the powers of the former, and to dispose it to morbid influences from which it is, at other times, and in colder regions, exempt. Of dyspepsia, *δύς* and *πείρω*, a judicious practitioner observes, that when he finds writers speaking of its termination in ulcers and other organic changes, he cannot avoid considering them as using a phraseology at variance with sound investigation, and calculated to obscure a subject of the utmost practical importance. It may commence or terminate in structural change, indeed, but this is an incidental, not a necessary ingredient. Few maintain the digestive functions at all times in integrity; but it is only when gastric derangement becomes permanent, which it does not do until after several remissions and exacerbations, that the term is bestowed. Thus, one on whom exciting causes have been operating, begins to experience an irregular capricious appetite; his food has no longer the same flavour, nor is it digested with the same vigour. He is troubled with acid eructations; the belly becomes hard and full, with perhaps wandering pains; the urine alters in colour and quantity, and presents variable deposits; the bowels are costive, possibly loose, with stools, sometimes dark, at others light, displaying a deficiency of bile; the skin dry and rough, without the velvety consistence of health; the tongue white and slimy, or red and dry, with foul or stercoraceous breath, and a bad taste in the mouth. Nature often cures these perversions, more especially if the patient by abstinence second her intentions; but, if this be neglected, indisposition becomes permanent. In one who labours under habitual indigestion, no function is performed with ordinary regularity; the face becomes pallid, the muscles soft and flabby, the generative faculty inapt, and the mind, as Abernethy remarks, irritable and despondent. Digestive derangement, as the same scrutinising practitioner observes, may long subsist without any organic change. The secondary effects, either directly induced, or arising from concomitant influences are almost innumerable, and often so anomalous as not to be accounted for by any of the known laws of morbid sympathy. Running wounds,

sores, and other affections, by preventing exercise and the inhalation of pure air, influence and pervert the digestive functions. Here, it is necessary to attend to the local, before we can hope to subdue the constitutional disorder; at the same time, to use the language of Abernethy, by correcting obvious errors in the digestive organs, maladies that had baffled all attempts at cure by topical means, have been speedily removed. How often, for example, in diseases, whether acute or chronic, of the skin, has every means proved inoperative, till the stomach and bowels were set right. In fact, two or more morbid processes, unless one or both be removed, induce reciprocal, and perhaps irrecoverable aggravation. Abernethy mentions stricture of the rectum, apparently from over-retention of putrefying feces, which subsided after four or five weeks' daily enemata. He also describes painful tibial periostium, which was effectually remedied in a week, by five grains of blue pill every alternate night. This writer, after labouring three winters under rheumatism, loss of appetite, and ulcerated throat, following a prick in dissection, and cold, was only cured by eating vegetables and drinking water. Abercrombie mentions some curious cases in which the heart's action was so far deranged, as to simulate organic disease. Parker devotes a number of chapters to the influence of morbid states of the stomach on the origin, progress, and termination of diseases of the liver, heart, lungs, and brain; but, without denying these theoretical views, I am free to confess that I think they have been carried too far.

Gastralgia, gastrodynia, and cardialgia, are names for pain in the stomach; it may be from flatulent distention, indigestible food, free acid, or even pure neuralgia. Some substances, as bitter almonds, muscles, lobsters, and so forth, in certain persons, entail great suffering. Thus, Andral mentions a lady in whom indigestion induced not only intolerable anguish in the stomach, but frigid extremities, cold sweats, and weak pulse. In fact, things disagreeing with the dyspeptic, comprise almost every alimentary substance. In such, digestion is more or less interrupted, and the food comes under the operation of mere physical laws: hence it has been cast up hours or days after being swallowed, nearly or wholly unaltered. So, among others, Beunet, in his *Theatrum Tabidorum*, adverts to one who died in great agony after being put on a milk diet, whose stomach and duodenum were found stuffed with curd. Elliotson mentions a person who retained a coagulum of milk for a week, and quotes an instance in which it remained two months. Portal in his *Recherches sur la fièvre hectique*, tells us of a woman who only recovered from the last degree of marasmus, after vomiting half-cooked bacon swallowed six months previously; also of another similarly reduced, who was cured by throwing off some ox-heart which she had eaten two years before. Lastly, Morgagni describes a person who, having swallowed a quantity of peas in the month of June, became affected with a bowel complaint in October, which lasted two months, during which time the patient passed two pounds of these pulse. The French talk much of *saburres gastriques*; and certainly, without going so far as this expression would warrant, bile, mucus, and other matters, find their way into the stomach, whence, as Rees observes, they are expelled, with great advantage, by an emetic. The food may undergo certain chemical changes, acids perchance, being

evolved or secreted; whence pyrosis, soda, heart-burn, the *fer chaud* of the French, with water-brash, or the ejection of a hot scalding fluid from the mouth, some two or three hours after eating. This is common in Ireland and Scotland among the poor; and I have seen it in children who were forced to eat food that disagreed with them, or to which they were averse. In some cases, as *pica infantum*, the appetite is perverted, and even depraved. Young persons will consume the most revolting substances—mortar, clay, pebbles, salt, the droppings of candles, and even soot. Such perversions are common in maniacal, chlorotic, and puerperal cases. *Pica Africanorum*, malacia, or dirt-eating, is sometimes traceable to a desire, on the part of slaves, to commit suicide; but Indians, on the Oronoco and elsewhere, according to Humboldt and others, when aliment is scarce, consume a sweetish unctuous clay with impunity; and the poor Cingalese have even been known to eat honey mixed with rotten wood. In bulimia, cynorexia, or canine appetite, the desire for food is prodigiously increased: Tarare, and a girl mentioned by Rostan in the Salpêtrière, each devoured food enough for a dozen. A fellow used to go about Hindoostan, who not only consumed a whole sheep, but ate it alive. Vesalius found the ductus communis in a person of this description communicating with the stomach.

Functional irregularity implicates not merely the stomach, but the intestines, large and small, to the production of flatus, disordered secretion, perversion of the biliary discharge, diarrhoea, or constipation. Structural change here, though it be incidentally combined, is not more necessary than in disease of the stomach. Pain in the duodenal region, whether from flatus, chymous distention, the irritation of worms, structural disease, or neuralgia, is doubtless often erroneously referred to the stomach, liver, or colon. It is said to extend obliquely backward, in the direction of the right kidney. Concretions with different nuclei, also, what from imperfect action of the ilso-cæcal valve and other causes, scybalous, or stercoracious masses, may block up the intestines. Lord Heathfield, not to mention other instances, is said to have laboured for years under an accumulation of magnesia to the amount of several pounds, in the caput coli. He complained of constant numbness in the right thigh. Undue retention, the more fluid parts being absorbed, is one of the most frequent sources of gastro-enteric derangement, as well as of perversion of the circulating mass. In other respects, by inspecting the fecal discharges, we ascertain their colour, form, and consistence, their paucity or abundance, the absence or presence of bile, the predominance or otherwise of serum, pus, mucus, blood, fat, worms, and those tubular casts which simulate false membranes. Iron changes the stools black, rhubarb yellow, and in young subjects, calomel, green. In the latter, also, the absence of bile leaves them white, in adults, of a clayey aspect. A substance like yeast or barm is often discharged in large quantities; at other times, jelly, mucus, or serum. I have seen the colon in extreme flatulent distention, delineated through the parietes. A noise like the chirping of birds, by Bradley termed stridulous, which Todd refers to tonic colonic dyspepsia, and Hall to spinal irritation, is sometimes heard. One well-marked, but otherwise intractable case, which had been created as disease of the heart, came under my observation.

Dyspepsia is mainly referable to some error of regimen, some act of

omission or commission, with regard to air, exercise, food, drink, occupation, mental quietude or disquietude. Dyspepsia from excess, and dyspepsia from want, is by far the most important division we can adopt. In one case, the digestive organs fail from having too much, in the other, from having too little to do. In England we have dyspepsia from repletion, in America from eating rapidly. In the latter, imperfect mastication, mental preoccupation, application immediately after meals, with perhaps, hot malarious summers, too often render dyspepsia the rule, rather than the exception. There is probably much truth in Todd's remark, that a disposition to gastric disorder may be inherited, and that dyspepsia of one generation, becomes scrofula or consumption in the next. Some eat too much and work too little; others eat too little and work too much. The man who delves the stubborn soil throughout the day would experience no gastric disquietude from the beef, ale, pudding, and wine, of the replete but indolent citizen. People too often eat and drink without sufficient reference to the powers of their stomachs, and take little exercise beyond the minimum required to create a fictitious appetite and imperfect digestion. Hence the accumulation of unhealthy fat; while the excretories fail in activity, and become clogged. It is erroneous to view the digestive so much apart from other functions; sexual excesses, unduly exciting or depressing passions, suspend them for the time. Variety, doubtless, proves an incentive; but it is not the variety so much as the amount which we consume; it is the mass rather than the diversity of which it consists, that does the mischief. In manufacturing towns, when work is irregular or scarce, and even in many agricultural districts, the stomach, in advanced life more especially, becomes enfeebled, acid eructations and water-brash ensue, while the muscles grow soft, the face pale and etiolated, with fever, dropsy, consumption, inflammation, dyspepsia, and all the diseases consequent, directly or indirectly, on deficient nutrition. Incautious or excessive addiction to literary pursuits is among the sources of indigestion. Tissot, indeed, has written a book on the subject, almost enough to prevent one from opening another. The greatest desirable, or even possible mental culture, may, in the long run, be ensured without detriment to our corporeal powers; but then, the body must not be enfeebled by vigils through the night, physical inaction, or debauchery. The poor artisan, however, doomed to almost ceaseless drudgery in a foul atmosphere—perhaps, ill fed, ill clothed, despondent, and deficient in prudence and forecast, becomes almost necessarily dyspeptic.

In gastritis, from ingestion of irritating poisons, we must promptly exhibit an emetic—if there be one, a counterpoison, white of eggs, for example, in the case of corrosive sublimate; after which, copious emollient drinks, leeches, and counterirritation over the stomach. Small doses of opiates are often serviceable. Food, as milk, soup, and thin panada, must be taken with extreme moderation. The stomach, after the deglutition of arsenic or other corrosive substances, long remains weak and irritable. Slow poisoning was once supposed to be common; and, doubtless, the continued exhibition of minute doses, as more than one unhappy instance testifies, wears down the strongest constitution. Iodine, not to speak of calomel and other substances, was so much abused in certain districts of Switzerland, in the treatment of goitre.

as to call for government interference. In the case of swallowing water or other fluids, when the body is heated, the best remedy is a large dose of brandy. Iced liquors, however, both in Italy and the United States, are consumed to a great extent. As to cramp in the stomach, I employed emetics to get rid of the offending mass, also copious venesection. Had I then had recourse to a large opiate, as resorted to by the local practitioners, it would have been better. Great caution, as to food is requisite after these attacks; and the offending substance must be eschewed. Should hematemesis and vomiting suggest cancerous or other ulceration in the stomach, we must put the patient on a very restricted regimen, and enjoin great quietude of body and mind. It is barely possible in the event of perforation, that adhesion may take place, so that we should lose no time, unless extreme prostration ensue, in resorting to opiates and venesection. Hematemesis and melæna, if in robust subjects, may be treated with low diet, free purging, iced water, and even bleeding. Should the discharge be copious, venesection is of course precluded. If connected with suppression of the hemorrhoidal or menstrual discharge, aloetic purgatives, in the latter case combined with iron, will be proper. Sometimes the acetate of lead and opium may be expedient; but I have had to desist from this combination, owing to a degree of fever, the opium affecting the head and inducing troublous dreams, while the acetate disordered the stomach. During the exhibition of the latter, it will be advisable, as suggested by Thompson, to combine white-wine vinegar, in order to prevent decomposition of the salt and the formation of the poisonous carbonate in the stomach. Melæna commonly subsides quietly, but I have met cases of passive hemorrhage to an extent such as to induce irremediable prostration and death.

In the treatment of dyspepsia, we must look to the cause: if from gluttony and debauchery, we must suppress these; if from inadequate nutriment, supply the deficiency; if from insufficient air, unhealthy occupation, wearing cares, or over study, interfere accordingly. The opulent are willing enough to consume medicine, but not to relinquish their luxuries; as for the poor, how is the physician to change the structure of society in their behalf, or out of his restricted means to provide the multiplied claimants with relief. In numerous treatises, all addressed to the rich, we are told what meats are good, and what bad; the shades of distinction between beef, pork, and mutton, white meats and red; how to cook, and how to masticate; but the fact is not sufficiently kept in view, that it is not so much what we eat, as overloading the stomach, and eating before air and exercise communicate vigour of digestion, that does the mischief. This will be evident to any well-conditioned person who compares his sensations on taking food after a long walk or mountain stroll, with those experienced on sitting down to meals just out of a reeking bed. A king of France, after a weary hunt, completely lost his way, and was glad, towards the close of day, to find refuge in a hut, where coarse bread and new milk replaced the sumptuous fare which he confessed he had never so well relished. It has been justly said, that we should not know we have a stomach; but we go on stuffing and eating, till we find not only that we have a stomach, but that it no longer does its work. Abstinence will not suffice without exercise: nature enjoins us to live in the open air, and

in some way or other to work for what we eat. It is wisely and beneficently ordered that we shall earn our bread by the sweat of our brow. Abercrombie passes an important remark, that articles, as milk and vegetables, which cannot be borne in a mixed diet, often agree alone; and, further, that the dyspeptic, if they observe the necessary restrictions as to quantity, may almost forego any attention to the quality of their food. He does not, perhaps, lay sufficient stress on the important point of living in the open air, without which, a mere minimum in diet will not accomplish the end in view. The grand dietetic rule is to eat simple, wholesome food, to leave off with an appetite not wholly sated, and not to eat at all till exercise in the open air create a strong desire to do so. Plain roast and boiled, fish, flesh, or fowl, with bread and good vegetables, are best. I cannot think that under-done is preferable to well-cooked meat. Soups, hashes, and cold dishes, are generally inexpedient. Beyond the obvious and indispensable restriction as to quantity, it is unprofessional to harrass a patient with unnecessary dietetic directions. Sometimes a stomach that has lost its tone, may have this renewed by a total change of diet; as, for example, eggs, fish, fruit, milk, or the farinaceæ, rice, barley, sago, maccheroni, or tapioca. Abercrombie mentions a lady in whom the smallest quantity of food induced acute pain and constant vomiting, who was cured by employing, for some months, fresh-made curd, in spoonfuls. A famous character, whom I somewhere read of, was permanently relieved by living on horseback, and eating hard-boiled eggs which he carried about for the purpose. Ratcliffe reinstated a dyspeptic patient by sending him to an imaginary practitioner in Aberdeen. With air and exercise, human stamina may be maintained on vegetable food, pulse, grain, and legumens, alone. The fellahs of Egypt consume bad pulse; the powerful porters of Constantinople, I believe, eat no flesh; and the muscular crew-men of the coast of Africa, not to advert to the Irish or Hindoos, live on rice. Indeed, the farinaceæ, weight for weight, contain more nourishment than any kind of flesh. For nine months on one occasion, six on another, I lived exclusively on rice, milk, vegetables, fruit, and butter, with health and vigour that could not be surpassed. Man, at any rate, is omnivorous, his existence, else, in many situations, could not be preserved. The great thing in diet is, first, moderation, then a suitable admixture; for, as Barlow observes, the interdiction of all vegetable matter, as if it were poisonous, begets more evils than any to which mere dyspepsia can give rise.

Gastrodynia or gastralgia, pyrosis, and pica, are removed when the gastric disorder which originates or accompanies them, is so. The practitioner last named, refrains from cordials, carminatives, and opiates; but, on the supposition that the pain arises from an effort of the stomach to expel the redundant and offending mucus, has treated hundreds of cases in the Bath hospital, with calomel and colocynth, followed by a mixturo containing an ounce and half of carbonate of soda, an ounce of dilute sulphuric acid, three ounces aromatic confection, three drachms peppermint, in seven and a half pints of water. Abercrombie recommends aloes and aromatic powder with sulphate of iron, oxide of bismuth and rhubarb, also lime water. The sulphate of iron in pills, or half a drachm in a pint of water, with some of the neutral purging salts, a wineglassful or so, in the morning, is often

serviceable. Fothergill's infusion of aloes, rhubarb, and liquorice finds favour with some. Soda, lime water, and other antacids, have been sadly mismanaged. The treatment of pyrosis has been eminently empirical; astringents, tonics, strychnia, and other powerful remedies, have been employed to excess. Conjectural practice may occasionally prove successful, but the most rational will be to detect and obviate the regimenal error. The majority of cases have been in persons who consumed a poor diet, or whose constitutions were impaired and broken down; here the indication is obvious. Flatus often proves urgent; I have found it associated with late hours and unduly distended stomach. Mild purgatives, as rhubarb and calumba, or mercury and chalk, carefully regulated food, clothing, and exercise, with the bath, cold, warm, or tepid, according to the season, will suffice to remove most cases of infantile or chlorotic pica. This is a town-engendered disease, and rarely witnessed except in cases of neglect. Constipation, a frequent result of indigestion, is too often treated by mere purgatives, irrespective of general indications. I have subdued obstinate cases of dyspepsia and indigestion without a particle of any purgative medicine; Broussais, indeed, went so far as to condemn it altogether. Trite to say, nature could not intend the habitual employment of aperients, yet many never otherwise procure a stool; some resorting to this, some to that, while not a few have recourse to the homicidal preparations of quacks. These remedies, as well as enemata, a disgusting resort, have been grossly abused. When people neglect the natural call, the feces, as O'Beirn observes, retire, while the more fluid portion is absorbed; and the scybalous mass, though pushed forward by fresh arrivals, constitutes an impediment to defecation. The rectum, cæcum, and sigmoid flexure of the colon, often become impacted. Mayo mentions a corpulent publican who vomited whenever he rose out of bed. An injection of nine pints of water brought away an immense quantity of scybalæ, while further injections with alteratives, reinduced perfect health. I know a female whose bowels are open only once a week; another in whom they were often confined a whole fortnight; and I was consulted by one in whom they had been three weeks so. A daily morning evacuation, though some have two, is best; when periodicity is established, the bowels regulate themselves. A tumbler of water fasting may act as a gentle laxative; also, a saunter some fifteen or twenty minutes after breakfast, turning attention to the subject. Aperients, however, are sometimes useful; they promptly clear out the bowels, and thereby expedite the process of cure; lower the system in the fat and indolent, and prove important alteratives in cases in which neglect has gone far to load every organ, the blood itself, with impurities; lastly, they act as a judicious stimulus, improving the appetite, and rousing the latent powers of the constitution. The simplest are best; felicitous combinations are oftener imaginary than real. Idiosyncrasy, however, must be attended to. I knew a single blue pill to loosen the teeth, and senna to induce the most violent symptoms. Some will bear the most active aperients with little inconvenience, while small doses readily induce hypercatharsis in others. It must be kept in mind that the eventual tendency is to induce constipation, and that, with the exception, perhaps, of castor oil, their action becomes weaker on repetition. If nature be provided with crutches,

she will not use her feet. Some commend very small doses of blue pill or other aperients: in a case of vomiting which had subsisted for weeks, Parry found half a grain of aloes, every four hours, to act on the bowels and relieve the complaint. Here, Pemberton recommends kino and opium, ten grains of the former to half a grain of the latter; Wilson, saline draughts, with sulphuric acid, conserve of roses and peppermint water, or a pill of opium and camphor, with a blister to the stomach. In the instance of a lady, after creosote and numerous other remedies had been tried, porter, which I allowed in unsparing quantities, was the only thing to lie on the stomach, act on the bowels, and, in fine, achieve a cure. Abercrombie advocates calumba, carbonate of potash, and a few grains rhubarb, once or twice daily; sulphate of iron with aloes; quinine with aloes and rhubarb, or a few grains of ginger with bismuth, rhubarb, and aloes: at other times, lime water or nitric acid. Abernethy was no advocate for copious purging, but for such remedies, Plummer's pill, mercurial pill, mercury with chalk, or compound extract of colocynth, as would moderately relax and gently clear out the bowels. Todd is for rhubarb and magnesia, carbonate of soda, tartrate of potash or soda, in some aromatic or carminative water, with a little tincture of rhubarb, compound decoction of aloes, spirit of lavender, or aromatic spirit of ammonia; infusion of wormwood with wine of aloes and liquor potassæ; the infusion of quassia with sulphate of potash; also infusion of tamarinds with manna and some neutral salt; pills of aloes, rhubarb, calumba, and soap, in equal proportions; and, lastly, the compound rhubarb, galbanum, or squill pill. Parker recommends sulphate of magnesia in the infusion of cascarrilla; blue pill with rhubarb or aloes, morphia, the extract of hops, lettuce or hyosciamus. He has found narcotic applications to the epigastrium, in painful affections of the stomach, useful. Rees gives sulphate of magnesia in infusion of roses, rhubarb and aromatic powder; rhubarb and jalap with nitrous ether in camphor mixture; aromatic tincture in the solution of Epsom salts; infusion of senna with tincture of jalap, or castor oil with tincture of senna. Wilson Philip has found ipecacuanha, compound extract of colocynth, soap, and, if needful, a little gamboge, also senna, of much value. In my own experience, blue pill with extract of taraxacum or gentian, and ipecacuanha, also the compound colocynth pill with calomel, have often proved serviceable.

It is plain, from the importance attached to purgatives, that the majority of writers have looked on them as the essential; exercise in the saddle, however, or on foot, morning frictions and the shower-bath, with a plain restricted regimen, will do more good than all the purgatives in the world, useful though they be, without these means. Walking, progressively increasing the amount, is one of the best restoratives imaginable; it is even superior to horse exercise, so much and so justly lauded by our English Hippocrates. Muffling, in the shape of flannel next the skin, is better than a great coat; and with a stout frock, a stick, and, if possible, a cheerful companion, were it only a dog, let the patient sally forth—if over a rugged unequal surface, so much the better. Languor will at first ensue, but, as this goes off, an exhilarating glow pervades the frame, ending in cheerfulness, craving appetite, and, if properly persevered in, complete renovation of all the

excretions. I sometimes advise a patient to walk one day and ride the next; indeed, passive exercise is often useful. It may happen that entire change of scene and occupation is desirable; the greater, the more effectual. In 1821, a student harrassed with dissections at La Pitie, clinique at the Hôtel Dieu, and midnight study, lost all desire for food; his colour grew bad, his spirits languished, and the bowels became obstinately constipated. In this state, he drove off, *summa diligentia*, to Brussels, where he wandered about the environs and ate spring fruit without reserve, but of other medicine none; in a fortnight's time, no trace of indisposition remained. The dyspeptic labourer only requires better food, the dyspeptic artisan better food and air. If the poor tiller of the soil could but subsist on the fat of the earth, and the rich sybarite be reduced to hard fare and assiduous toil, it would equally benefit both. The literary dyspeptic should live more *sub dio*—*melior est ambulatio sub divo, quam in porticu*, quoth Celsus. A man's mind was not intended to be a mere receptacle for book lore—a literary sieve; the body must be cultivated likewise. Let study be followed in the morning, at night never; and let four or six hours daily be spent in the open air. The student's motto should be *σπευδε βραδεως*, *festina lente*—the *ohne Hast aber ohne Rast* of the illustrious Göethe; thus, as life wore away, his mental would increase without prejudice to his corporeal powers.

VII—MUCO-ENTERITIS, DYSENTERY.

ENTERITIS may be assumed as the generic term for inflammation, as incident to the mucous, muscular, or peritoneal coats: inflammation and gangrene, though rarely, may extend to all three. Inflammation of the mucous coat is almost always confined to the large intestines. Dysentery, otherwise inflammation of the mucous membrane of the cœcum, colon, and rectum, is common and destructive. As the colon is the largest portion implicated, the term colitis is often applied. It has been questioned by Johnson and Armstrong, whether dysentery in the first instance be inflammatory; a doubt, however, which no one now, I believe, entertains. Dysentery is the scourge of warm climates, but it is occasionally frequent and destructive in cold. I witnessed the complaint years since, in Africa; but never cases more intractable than those in Ireland, vicarious or otherwise, with the fever of the country. Indeed, as Cheyne observes, the dysentery of 1818, with its mucous, bloody, or purulent stools, and occasional shreds or sloughs of mucous membrane or coagulable lymph, was, in all respects, the counterpart of the tropical disease. Epidemics, in different parts of Europe, are referred to by Zacutus Lusitanus, Bartholinus, Morton, Hoffmann, Pringle, and many others. Sydenham speaks of the dysentery prevalent from 1669 to 1672; Fernelius, also, and Sennertus, advert to epidemics in their time. Fourteen thousand or nearly, were attacked within the space of five years, according to Annesley, during the hot months, in Bengal; while of four hundred and ninety seized during seven months, being the stay of the 30th regiment in India, eighty-five died. During the peninsular war, about five thousand perished.

In dysentery or colitis, febrile reaction, perhaps from the excessive discharge, is often absent or low during the whole of the disease; in other cases, the fever is high, with hard and frequent pulse, hot and burning skin. There are violent, almost unceasing feculent, mucous, serous, purulent, or bloody evacuations; oftener, however, fetid and shreddy, not unlike the rinsings of raw flesh. Hence the terms bloody flux, white flux, as applied to the disorder.

Dysentery is characterized by considerable pain and tenderness above the pubis, extending to the hypogastrium, with severe strangury; a symptom that Trotter ascribes to bearing down of the fundus of the bladder. The patient complains of great debility, lowness of spirits, anorexia, urgent thirst, and distressing tenesmus; he cannot bear to leave the stool, and when he does so, perhaps instantly returns; soldiers, indeed, have been observed to take their mats to the water-closet, and spend the night there. Food and drink pass through with a burning sensation; and those affected can hardly believe that the produce of all their straining is merely a little mucus or blood. The rectum protrudes, and instances occur, in which, along with the margin of the anus, it has been known to slough. Patients cannot refrain from copious draughts of water, though, perhaps, instantly rejecting them again. The pulse yields a peculiar bounding thrill, which Ballingall considers significant of extreme danger; while subsultus, delirium, and hiccough, with foul sordes about the teeth and lips, clammy cadaverous sweat, swarming flies, and, lastly, death, a welcome relief, ensue. While some cases display all the prostration incident to typhus, others exhibit no intellectual lesion before the close. It is usually considered a fatal sign, when lumbrici or other worms abandon the decaying tenement. Acute colitis may end in resolution or death, or it may run on to the production of chronic disease, with dull, deep-seated uneasiness, not sufficient, however, as Annesley observes, to occasion alarm. I have seen patients labouring under fatal chronic dysentery, who complained of no pain whatever; while others, again, displayed all the features of exquisite hectic. It is not mere habit, as Trotter supposes, but subacute inflammation and ulceration, which occasions its prolongation for months. When the acute stage, as Cheyne observes, extends to the second or third week, with haggard aspect, quick pulse, and tender abdomen, there is little prospect of recovery. In the East, where the disease begins very insidiously, mucus and blood, after a day or two of ordinary purging, will be passed with great straining and tenesmus. Hemorrhoids are always productive of aggravation. In Ireland, the disease, as O'Brian observes, often began with symptoms of idiopathic fever, which, in a short time, lapsed into those of dysentery. The discharges vary from twenty to forty, in the twenty-four hours; at others, they are, in a manner, continuous. In many cases, the skin becomes of a dark hue, while the eyes and features grow collapsed and pinched. In children, I have seen the lids half closed and the eyes turned up, so that nothing was seen but the conjunctiva. By the unanimous consent of practitioners here, in the East, and in America, scybala are not met with: the most common discharge is mucus, sometimes pus, streaked with blood; and, if the disease continue long, a sort of bloody sanies. Muc-enteritis, as Abererombie observes, may prove fatal in the acute stage,

by gangrene, by ulceration, and by passing into muscular enteritis and peritonitis. The progress of the disease is sometimes very rapid, the body, after death, presenting little or no attenuation. The foregoing writer relates a case of only nine days' duration, in which the inflammation, besides extending to the ileum, had induced fungoid elevations of the mucous membrane. Infantile dysentery is common and destructive in the United States, where it may be said to be endemic. It carries off great numbers during the autumnal months, obtaining the popular designation of the fall sickness; hence these months, as Dewees observes, are the dread of every mother in the United States. It comes on with a thin, watery, sometimes slimy or mucous discharge, tinged with blood. There are stupor and delirium; the eyes are half closed in sleep, and sometimes completely bloodshot. The thirst is unquenchable, but all fluid is immediately rejected. Rapid emaciation ensues, so that the skin hangs in folds; on the forehead, however, it is tense, while the eyes and cheeks are sunk, and the nose pointed. The belly becomes tumid, apthæ form, and the child allows flies to collect, while he thrusts his hand almost into the fauces. In a few instances, the eye brightens up, the little patient displays unusual intelligence, eats, drinks, and dies. The infant, says Abercrombie, is usually hot and restless, with great thirst, dry crusted tongue, vomiting, and screaming on pressure. Diarrhœa and strangury are urgent, the feces are squirted out with violence; at other times, though the disease be advancing to a fatal termination, with rapid exhaustion, decomposition of the features, coma, and death, there may not be more than two or three stools within the twenty-four hours.

From the circumstance, as Andral remarks, of any impediment to the return of blood to the central organ of circulation, causing a sort of regurgitation to the liver, which refuses to receive the contents of the portal veins, injection and reddening of the mucous coat may ensue apart from all inflammation. The development, with central depression of the mucous follicles, has been pronounced ulceration, when nothing of the kind subsisted. In warm weather, a change of colour is sometimes observable in the vicinity of veins distributed to the sub-mucous cellular tissue, when an examination has been protracted four and twenty hours after death. In other respects, I have witnessed the reddening, thickening, and ulceration, unequivocally indicative of inflammation. On laying open the abdomen, says Ballingall, a mixture of lymph and serum is generally found; the omentum, slightly adherent to the convolutions, is shrunk and doughy, in protracted cases, free from fat. Though the ileum sometimes participate, the great intestines display the strongest marks of inflammation, from slight redness to the highest degree of lividity; while, in some cases, air and even feces are found in the cavity of the abdomen. The cœcum and vermiform appendage are mostly implicated; the cells of the colon, in a great measure, obliterated; the coats thick and brittle, so as to resemble a rotten rope. The liver is frequently free from the most trifling marks of disease; but the bladder sometimes bespeaks an inflammatory aspect. Marshall describes thickened, heavy, and lumpy intestines, with adhesions to the liver, bladder, and to each other. The red and tinged villous coat of the cœcum, colon, and rectum, has been compared to that of the eye in ophthalmia. Here and there,

gangrenous patches, sometimes extending through the muscular and peritoneal coats, are occasionally observable. In dissections made in Dublin, Jacob adverts to marks of peritonitis, with adhesions, and effusion, in one instance, very considerable. In twelve cases, some of them chronic, and complicated with dropsy, the liver was diseased in six, spleen in three, ileum inflamed or ulcerated in eight, great intestine gangrenous in one, contracted in two, inflamed and ulcerated in all. In Choyne's cases, there was ulceration of the great intestines, though the last three or four inches of the rectum were sometimes exempt. In one patient, the largest portion of healthy mucous membrane did not exceed an inch; in fact, it was in a manner destroyed. The muscular coat was often simply exposed and clean, at others, more or less eroded; the large intestines were much thickened with effusion of coagulable lymph in layers or granules.

Climate first, then the application of cold to the surface after prior exhaustion, and, perhaps, profuse perspiration, are the leading sources of dysentery. In warm regions more especially, the sympathy between the skin and mucous membrane is excessive; hence it is not surprising if, after the suppression of cutaneous transpiration, we have revulsion and vicarious determination, with inflammation and discharge of blood and mucus from the bowels. Atmospheric vicissitudes, as Johnson observes, are not nearly so productive of dysentery as when attended with dews and moisture; hence, the wet seasons in sultry latitudes are those of bowel complaints; hence, also, the prejudicial influence of woods, marshes, jungles, from moisture extricated during the day, and corresponding precipitation at night. The dysentery of temperate climates prevails most in summer and autumn, when the days are warm, though the nights be cool. Morton and Sydenham describe epidemics of great violence in London. There are no epidemic dysenteries in large English cities at the present day, but this cannot be said of Ireland, where wretchedness and destitution give mere climatic influences enormous sway. I have seen nothing to mark the communicability of muco-enteritis from subject to subject, but there are instances which would seem to lead to that inference. A young lady near Dublin, relates Cheyne, was attacked with dysentery, of which she died; her sister was then affected, and perished likewise. Here, the family removed to the house of a friend, where the mother was seized, as also the hostess, her daughter, and two servants; but they all recovered. Linneus' notion in the *Amenitates Academicæ*, that the disease was propagated by an insect, the *acarus dysentericus*, is purely imaginary. It is asserted by Strack in his *Tentamen Medicum*, that, in the epidemic of 1757 in Mayence, children, the mothers being affected, were born labouring under dysentery. Hunter informs us, that, in Jamaica, remittent fever and dysentery are often combined; and that the latter, as in 1782, is more common in some years than in others. Dysentery has been ascribed to over indulgence in fruit, but this is unfounded, except in so far as preoccupation and weakening of the digestive organs may act as predisposing causes. In fine, any thing that tends to debilitate the frame, excessive venery, drunkenness, debauchery, foul air, inferior nutriment, damp, dirt, cold, and despondency, are alike conducive to the disorder.

Dysentery is an affection which cannot readily be mistaken for any

other. The stools in peritonitis are natural; in muscular enteritis there is obstinate costiveness; whereas, in muco-enteritis the discharges are feculent, mucous, purulent, or bloody. Serous diarrhœa, however, as in Asiatic—feculent or mucous, as in English cholera, may subsist without any inflammation whatever, and prove at once obstinate and fatal. It is of great importance to pay the earliest attention to muco-enteritis, as indicated by local pain and tenderness, general reaction, difficulty of passing water, mucous or bloody stools, and tenesmus; since, if the disease be allowed a certain respite, fatal, incurable disorganization is the too frequent result. Hence, those who have the charge of sailors and soldiers, proverbially so careless, should duly attend the daily muster roll, and by prompt measures, arrest the early progress of a disease that sweeps myriads of brave men into an untimely grave. Simple diarrhœa may ensue at any period of the year, summer and autumn more especially, and at any time of life, but young subjects are the most liable. Certain individuals are prone to the complaint, as others again are to costiveness. The epithets mucous, bilious, serous, feculent, have all been applied as characteristics of the disease. Sometimes, but very rarely, tubular concretions, presenting moulds of the intestine, and simulating the mucous membrane, are passed. Fatty or oleaginous discharges have been known to ensue from the bowels, and even, as Elliotson mentions, the urinary passages. The species of indigestion termed lientery, in which the food passes unaltered, is not peculiar to diarrhœa: I have, indeed, oftener seen it without. Diarrhœa has been observed to alternate with gout; hence the diarrhœa arthritica of Sauvages. Chylous or chalky diarrhœa, save from the absence of bile, is imaginary; white stools, however, are common in tabes mesenterica and other affections. The colliquative diarrhœa of phthisis is commonly the result of intestinal ulceration; that subsisting in the last stages of fever, often results from debility and relaxation of the sphincters. Diarrhœa frequently ensues in measles and variola, as well as in various chronic affections. The application of cold to the surface or extremities, dental irritation, sausages, ham parings, charcuterie, the ingestion of indigestible substances, crapulous surfeits, and abuse of fruit, mental anxiety and agitation, are all productive of the disorder. Diarrhœa may subside after a few loose stools, with more or less griping, or it may persist hours, days, and even weeks together. English cholera, a severer form of diarrhœa, in the early stages is easily checked; but, if allowed to go on, may be productive of cold surface and extremities, spasms, collapse, and death. Weaning-brash is a term applied to infantile diarrhœa; it cannot be said, however, to be peculiar to the weaning period, and is admitted, by Cheyne and Dewees, to be only so when this occurs in autumn. In the United States, indeed, it is a precept during the fall, when the days are warm and the nights cool, not to wean or change the diet of the child for some months. It is often ascribed to teething, with which it may have nothing to do; and the finest children, as Maunsell and Evanson remark, may be reduced by it to a wretched state of marasmus. When associated with fever, we have only the local tenderness to enable us to discriminate it from muco-enteritis, so that the diagnosis, as Abercrombie confesses, becomes very difficult. Few, says Cheyne, perish before the sixth or seventh week, though some do on the third or fourth; others, again, have been

known to recover after three or four months. Here the complaint may be truly said to continue from a sort of morbid habit conjoined with extreme debility. Occasionally spurious coma, with dilated pupil and convulsions, ensue; that is to say, coma arising neither from cerebral inflammation nor congestion, but the opposite of these, anemia, namely, and the absence of pressure. In fatal cases, the vomiting is sometimes preceded by intussusception, otherwise invagination upwards or downwards, of the bowel, perhaps in several places at once; but this is only to be ascertained by examination after death, unless in those comparatively rare instances in which the intestine protrudes. In some, what from congenital weakness or straining, there is prolapsus or procidentia, more or less, of the rectum, which may be repeated for months or even years, whenever the child goes to stool.

The first, and most important measure, seeing its inflammatory nature, in the treatment of dysentery, is local and general blood-letting. Too much attention has been directed to the discharge rather than to the morbid condition which is productive of it. Inflammation, however, is more obstinate in mucous, than serous surfaces, and, unhappily, rarely stayed by blood-letting alone. Indeed, in persons with impaired constitutions, long resident in tropical regions, this measure is borne with difficulty, if at all. Yet Ballingall mentions, that the few cases in which he employed it terminated favourably; and that in those which were fatal, he felt regret in not having carried it further. He is in favour of topical evacuations, by leeches, chiefly on the authority of Annesley. The latter, indeed, employed active purging, bleeding, and blistering, all within the twenty-four hours. The subject of one of his cases had been ill two days before admission into hospital, with large discharges of discoloured blood; yet the disease, as in several other instances, yielded immediately to the application of eighteen leeches. These, fortunately, are plentiful in warm climates, and, when the case permits it, should be laid on by dozens at a time. There are limits, however, to the practice; and it will happen, in the advanced stages more especially, as Cheyne observes, that patients sink, who at first would have borne a moderate detraction well. On the whole, Annesley, not to mention M'Gregor, Johnson, Bampffield, and others, arrives at the safe and rational conclusion, that copious early venesection is advisable in the robust and plethoric, and leeching in the broken-down and debilitated. In home practice, I have employed early general and local depletion with striking advantage. In the cases of two ladies, seized after wettings, with violent muco-enteritis, attended with excessive febrile reaction, tenesmus, frequent mucous and bloody stools, then pure blood, and in one of them delirium, I have every reason to believe that the lancet, with leeches, and the free use of opium, saved life. The patient, if young, and in the first stage of the disorder, says O'Brian, speaking of dysentery, in Dublin, was bled to the extent of twelve or fourteen ounces, and placed in a bath. Venesection, observes the judicious Cheyne, was certainly the remedy least equivocal in its effects, and most uniformly useful in the Whitworth hospital. After the withdrawal of eighteen ounces of blood, often cupped, abdominal tenderness was relieved, the character of the stools sometimes immediately altered, and, what is interesting, after purgatives failed—the patient perhaps for days having had nothing but muco-

sanguinolent stools, a large feculent motion was not unfrequently passed. Those who object to it, he observes, can never have witnessed the great relief which profuse hemorrhage from the bowels in this disease sometimes affords. The foregoing writer has even resorted to blood-letting with advantage, when there was reason to believe that ulceration had set in; and when followed by blisters, mild aperients, and anodynes, the relief, in a few cases, was permanent.

The idea of acrid sordes, scybala, and the like, has so haunted the minds of practitioners, as to have led to an undue prepossession in favour of purgatives; hence calomel, neutral salts, and castor oil, have been given, too often, with unsparing hand. It certainly may, and does happen, that fecal matter, from stress of inflammation in the lower bowels, may be retained in the upper; in which case a moderate aperient will clear them away. Yet, even in what is termed white flux, the stools have come round to their natural aspect without a particle of mercury. By some practitioners, purgatives have been administered through the whole course of the disease; and certainly, in robust, plethoric subjects, where antiphlogistics are necessary, this, as has been shewn by Annesley, Ballingall, and others, may be done with impunity and advantage. Too often, however, they have been given in immoderate doses, or otherwise abused. I have repeatedly, says Copland, known persons accounted ignorant, though not without sense, complain bitterly, and lose all confidence in their medical attendant, when directed to take cathartics, after, to use their own expression, their insides were nearly purged out of them. Ballingall thinks that the operation of even a single purgative might be safely omitted when diarrhoea has preceded the patient's admission; otherwise it was well to see that the bowels were not loaded with feculent matter. Should increased pain and tenesmus, however, with mucous or bloody stools, in place of feces, ensue, aperients, to say the least, become unnecessary. In many instances, says Cheyne, though he approve of them in others, purgatives greatly increased the patient's sufferings; and castor oil, the cathartic often preferred, roused the dormant griping pain. Epsom or Rochelle salts in mint water, rose tea, or infusion of calumba, with one grain of tartar emetic to eight ounces of the solution, or cream of tartar finely levigated, in half ounce doses, moistened with a little water, were employed by this practitioner. These, preceded by venesection, or a bath in the evening, lastly, an opiate, rendered diaphoretic at bed time, were frequently successful when employed early in the disease.

Testimony, as to the utility of mercury, is very conflicting; by some it is supposed to stimulate the liver. After local and general depletion, counterirritation and the warm bath, calomel and opium, so as to touch the gums, may be supposed to exercise the same beneficial influence over inflammation of the mucous membrane, as in the case of other organs. Oftentimes, however, it will not affect the mouth, and has no command over the disease; while, at others, though salivation be produced, the patient dies. Under no circumstances, however, should those enormous and revolting doses, once so common, be exhibited. Mercury, says Cheyne, did not always act kindly; a result, however, which, even when the mouth was affected, he would ascribe to the bad air of the hospital. In some cases, the gums became sore and tumid; when baths, opium, and blisters being substituted, a bene-

facial salivation would ensue. Ammesley gave calomel principally as a purgative; but sometimes with opium, interposing occasional evacuations, so as to affect the gums. Late in the disease, he observes, or too long continued, by inducing or keeping up irritative fever, and lowering the powers of life, it seemed to precipitate an unfavourable termination. This gentleman's practice was to bleed locally and generally in robust subjects, locally in weak; then to give a large dose of calomel with opium or Dover's powder, followed, in some hours, by castor oil, jalap, or cream of tartar, and a purgative injection. After this, calomel and opium was repeated, with baths, fomentations, blisters, anodyne enemata, and a purgative night and morning. Opium, what from its powers of allaying inflammation, what from its soothing effects, duly premising other measures, may be deemed the sheet-anchor in dysentery. Were the same cases to occur again, observes Cheyne, he would not hesitate to prescribe opium in four or five grain doses; since it not only arrested the progress of inflammation, but, by procuring respite from agony, sometimes proved of permanent benefit. Indeed, irrespective of other advantages, I have found it of the most signal service in allaying the intolerable straining and griping. Venesection, calomel, and opium, followed by cavi, as recommended by Pemberton, though they often lamentably failed, proved more successful than any other method in Cheyne's cases. The skin in dysentery is dry and harsh; and it is justly observed by this writer, that when its natural state was restored, matters generally proceeded favourably. I have employed opium, united with the acetate of lead, as recommended by Barker, with the sulphate of copper, as urged by Elliotson, but think better of its combination with Dover's powder, or ipecacuanha. I have tried the latter alone with benefit; indeed, the infusion of this root, two or more ounces at a time, frequently administered, is a favourite remedy with Indian practitioners. Suppositories of soap and opium I have not found retained; laudanum, in starch, soup, or milk injections of small bulk, often acted very favourably. Counterirritation, in the form of blisters, or, what I think preferable, flannel wrung out of boiling water, and sprinkled with turpentine or camphorated spirits, applied reeking hot to the whole abdominal surface, proved useful. In other respects, repeated fomentations and the warm bath allay pain and uneasiness, procure rest and sleep, and, with the aid of opiate injections abate the distressing dysuria. A flannel swathe or cummerband is not less useful during the intervals of these applications, than as a prophylactic. Chronic dysentery is treated much the same as the acute disease; than which, while frequently fatal, it is much more obstinate. I have tried every remedy in this lamentable malady, during the continuance of purulent, muco-purulent, or muco-sanguinolent stools, while the thickened, lumpy intestines could be felt through the abdominal parieties, too often, however, with little eventual success. In a case that had subsisted six months at Sierra-Leone, a gentleman now well and hearty, was advised to go to Rio; there, daily warm baths, emollient enemata, and mild farinaceous diet, when opium, with all other means had failed, effected a perfect cure. In the case of a lady where I had employed frequent warm baths, counterirritation by means of tartarized antimony, infusion of rhatany, kino, catechu, extract of logwood, and opium, the latter to the amount of a scruple and half a

drachm daily, without inducing the slightest narcotism, I gave them all up in despair, trusting to regimen alone; and eventually, after months' delay, and great wasting, the disease slowly gave way, and completely disappeared. The errors on this subject are astonishing. An individual in the ship in which I left Africa, persisted in the exhibition, to his little boy, of dry flour boiled into hard lumps in a cloth, till the hapless child at last was launched into the deep. Annesley relied on blisters and nitro-muriatic lotions, with opiate enemata, Dover's powder, astringents and nitric acid internally. Abercrombie advises sulphur; I have tried it, as well as finely levigated charcoal, without success. Mackintosh, after Pringle and others, recommends mutton suet boiled in milk, and strained, with the addition of cinnamon and sugar. I recollect reading in some work on strategy, the particulars of a garison reduced, by dysentery and a long seige, to subsist on flour and tallow, boiled together, by which means they were enabled to hold out to the discomfiture of both enemies. During recovery, when the utmost care should be taken to guard against relapse, cusparia, and other tonics, have been found serviceable.

As to the treatment of diarrhœa, many, on the presumption of acrid ingesta, administer castor oil, with peppermint and laudanum, which sometimes has the effect of removing it. I commonly prefer, however, an opiate in some aromatic mixture, perhaps a little negus or brandy punch. In urgent cases, the doses require to be pretty large, as well as frequently-repeated. Cold surface and extremities require the bath, or the more available measure of bags of hot salt, bottles of warm water and the like. Vomiting is combated by means of mustard sinapisms to the stomach, with small portions of diluents at a time, soda, or seltzer water, ginger, lemonade, and the like. The patient should keep extremely quiet, maintaining the recumbent posture, in which both sickness and diarrhœa are less apt to ensue. Should there be any tendency to recrudescence, opium, both in the solid and fluid form, must be exhibited afresh, while a strict watch should be kept on the patient. Mr. Cooper mentions ten grains of the subcarbonate of soda, and one drachm of tincture of capsicum, in camphor mixture, as useful in checking autumnal diarrhœa; Mr. Hope recommends laudanum, camphor mixture, and nitric acid, which, from the presence of the opiate, would probably prove more efficient. Infantile diarrhœa, when uncombined with fever, should not be allowed to persist too long. From half a drop to a drop of the tincture of opium in some aromatic vehicle, as aniseed water, with a little mucilage and syrup, answers very well. In many cases, infantile and adult diarrhœa, alike, is efficiently and permanently controlled by a mixture of rhubarb and calcined magnesia in aniseed water. The child will require a bath, and new flannel swathes in the interim. Every thing that tends to induce or renew the disease, irregularity of diet on the part of mother or child, exposure to cold, and the like, should be avoided. Dewees has found a quarter or half an ounce of pink root, infused in coffee and given with sugar and cream, useful in chronic cases. Cheyno advocated small doses of calomel; I have found mercury with chalk serviceable. We must not, however, fall into the error which Dunglison exposes, of looking on the chango produced in the stools by mercury as morbid, thereby taking up an erroneous indication for its continuance. Children, whose strength

is exhausted, will require various restoratives, than which I find none to answer better than chicken broth, occasionally, perhaps, a teaspoonful of negus. Those, however, who are brought up by hand, or the sucking-bottle, and stuffed with gruel, panada, or arrow-root, in place of having access to good breast milk, may be expected to incur diarrhœa, and other forms of disease, which we shall not always be readily able to remedy. Prolapsus of the rectum is best reduced, not by force immediately applied, which tends to inflame and excoriate the parts, but, the heels being together, by pressing the buttocks, closely approximated, with the fingers and thumb on each side upwards, by which means the protruded gut is promptly replaced. As this procedure may fail in inexperienced hands, it is right to mention that it may be rendered further certain, by laying the child on its face across the knee. Strychnia, in doses the twentieth or thirtieth of a grain, has been found useful, it is said, in this affection, which may be readily discriminated from the prolapsus of invagination, by carefully passing up a bougie along the side of the fold. Procidencia in the adult has been perfectly relieved by Dupuytren, by successively clipping away, with a pair of scissors, the projecting folds of skin which lie exterior to the margin of the anus.

VIII—MUSCULO-ENTERITIS, ENTERALGIA, ILEUS.

INFLAMMATION of the muscular coat is attended with acute, often intolerable local pain, twisting, and tenderness, confined to the umbilicus, extending to the right side, or even invading the whole abdominal region. In intestinal irritation, indeed, ensuing in hysteria, or the puerperal condition, the patient often cannot bear slight pressure, though she may not shrink from that which is decided. In colic, or ileus, the pain may or may not be relieved by pressure; but, in musculo-enteritis, the anxious, restless patient, can suffer nothing of the kind. In the event of gangrene, indeed, pressure gives no pain; in other respects, when peritonitis is combined, tenderness is comparatively increased. The posture is supine, the legs often drawn up, while the features are indicative of much suffering. The pulse is quick and small, at other times hard and wiry: I have met with it so low as ninety, or high as a hundred and twenty or thirty. In fatal cases, towards the close, it sinks and becomes exceedingly rapid; abdominal tenderness perhaps disappears, and the patient dies, retaining his faculties to the last. Though commonly as a concomitant on gangrene, the pain, as Abercrombie remarks, may sometimes suddenly cease without this disastrous consummation; while, at others, it continues notwithstanding. Sickness and vomiting may attend the disorder from the first, or not ensue till a variable period after. If obstruction prove decided, and vomiting urgent, it may go on, the peristaltic action being inverted, to the production of what has been termed the iliac passion, in which feces are discharged upwards. I have had occasion to witness this loathsome affection several times; not merely the ordinary fluid and solid contents, but castor oil, turpentine, and other ingredients of the enema being thus evacuated. Constipation is a frequent, almost invariable feature

of musculo-enteritis; it is of no ordinary character, resisting doses that, under other circumstances, would induce violent hypercatharsis. We may, indeed, have vomiting and constipation without inflammation; but, when fever and local pain subsist from the first, or come on afterwards, we are to infer enteritis, and act accordingly. Here the cup and buff of the blood will further assist the diagnosis. When, after copious blood-letting, and other remedies, the disease approaches resolution, constipation either spontaneously subsides, or yields to comparatively moderate quantities of aperients. It does occasionally happen, however, as the writer already cited has shewn, that the bowels are not confined at any time. In fine, enteritis, as regards the muscular coat, whether idiopathic or traumatic, the result of visceral strangulation, within or without the abdomen, is alike attended with the same features, namely, vomiting, often stercoraceous, obstinate constipation, great local pain and tenderness, with general fever and uneasiness.

The changes after death in musculo-enteritis are significant of intense inflammation, which, however, Elliotson is of opinion, affects the cellular, rather than the muscular coat; yet, that inflammation, independent of the dark hue ascribed by Baillie and Andral to congestion, may, and does ensue, is quite evident, not merely from change of colour, but from loss of texture in the parts. The serous coat, when implicated, displays a red or livid hue, with adhesions, effusion, and patches of coagulable lymph. In the numerous and instructive instances of enteric inflammation related by Abercrombie, there were great and uniform distention, perhaps contraction or collapse of portions of dark, livid intestine; sometimes with, at others without disorganization, softening, adhesion, and deposition of coagulable lymph. In one, the whole right side of the colon was gangrenous, while the caput cœcum had burst, and discharged a quantity of fluid feces into the cavity of the peritoneum. This was also the case with the vermiform process in another. Occasionally, stricture of the colon gave rise to distention, or even rupture of the part above, with perhaps few or no perceptible traces of inflammation, though not the less with nausea, vomiting, and abdominal tenderness. These, however, may ensue irrespective of obstruction, an occurrence referable, according to some, to intestinal spasm. To such cases the term ileus seems more especially applicable. Some temporary, and generally unknown cause, suspends the action of the bowels, whereupon nausea, vomiting, obstinate costiveness, and severe colicky pains. This may take place repeatedly in the same individual, eventually perhaps with inflammation, proceeding to gangrene and rupture; or death may happen without any inflammation whatever. Symptoms of ileus and enteritis have been known to arise from impacted gall-stones. A man, according to Abercrombie, who had been liable to violent paroxysms, followed by jaundice, was seized with pain spreading over the abdomen, followed by constipation and death. The upper half of the small intestine was inflamed; at the termination, a biliary calculus four inches in its large, three and a half in its small circumference, was discovered. The common duct admitted a finger, while the gall-bladder was inflamed and disorganized. Craigie, indeed, tells us of an old woman, who, after violent local pain, icterus, and obstinate constipation, passed a gall-stone weighing one hundred and sixty-two grains. I have met with an ex-

amplo, also, in an elderly female, in which pain in the region of the gall ducts was so intense as to induce delirium, with vomiting, constipation, and icterus. I saw a young lady in whom the usual symptoms of enteritis, quickly lapsing into the iliac passion, supervened after a ride in a swing. She died in full possession of her faculties, and free from pain. On examination, six inches of the ileum, strangulated and gangrenous, were found to have passed through an aperture in the corresponding mesentery. Abercrombie relates how a turn of the ileum had insinuated itself between two others partially united by a narrow band. Obstinate costiveness, vomiting, and, in twelve days, death, apparently from exhaustion, were the results. In another instance, a similar turning, involving the rectum, of the sigmoid flexure on itself, gave rise to enteritis, gangrene, and death. Sometimes it is tying down of the extremity of the vermiform appendage, of which examples are on record, that is productive of strangulation. Invagination or intussusception of one portion of the gut within another, the upper more frequently in the lower, is sometimes the only lesion. *Ego*, says Sauvages, *in puerulis cum et sine ileo similes vidi intestini invaginationes et constrictiones spasmodicas in cadavere perseverantes*. Intussusception, however, often ensues without specific symptoms, since, of three hundred children, dying of various affections, examined by Louis, the majority displayed one or more invaginations. Abercrombie mentions a woman who was seized, while dressing her child, with intolerable pain and vomiting; dying on the fifth day after great distress. Hero eighteen inches pulpy and gangrenous, of the colon, were found in the caput coli. A young man awoke vomiting and in urgent pain, dying collapsed in forty-eight hours; when it was ascertained that eight inches of the ileum were not only invaginated, but soft and sphacelous. In a child, the caput coli, in the shape of a dark bloody tumour, along which a probang passed a great way, actually protruded, need it be added, with fatal results, while pressing at stool. Dubreuil discovered in a young man, who had displayed symptoms of ileus, with black and swollen intestine depending five inches from the rectum, two huge invaginations. The duodenum, pancreas, commencement of the jejunum, mesocolon, and right portion of the omentum, were included in the descending colon; while the sigmoid flexure and rectum contained the end of the ileum, the cœcum, the transverse, and ascending colon. Lobstein, not to mention instances by Monro, Cruveilhier, Boileau, and Andral, relates the case of a woman, who, after labouring a fortnight under intractable ileus, passed a portion of intestine three feet long, with the corresponding mesentery. Fox, in the seventh volume of the Transactions of the Provincial Medical and Surgical Association, mentions the separation of five inches of intestine with complete recovery; and forty inches of gut, which had come away from a woman the subject of ileus, are preserved, it seems, in the Museum of Berlin.

Local pain, not aggravated by pressure, with vomiting and obstinate costiveness, may, indeed, ensue without inflammation; but the latter is a supervention which we are ever to dread. Indeed, many cases, perhaps the majority, designated and treated as ileus, are instances of muscular enteritis. The tendency to relapse and to subsequent attacks, is much the same in both. Besides numerous isolated cases, I attended a lady who had three several attacks of ileus, from which, by careful

regimen, she has since remained exempt. By a singular fatality, her husband became a martyr to the same disease; and, after sufferings aggravated by want of care, died at last, labouring under invincible constipation, with symptoms only referable to intestinal rupture. Independent of internal stricture, the causes of ileus, as well as of the invagination which sometimes leads to it, are not well known. The pain and suffering seem to be occasioned by imprisoned wind and feces; but that spasm ever leads to this, can only be matter of conjecture. Persons labouring under hernia live in the imminence of the disorder: *qui enterocoele, bubonocoele, exomphalo laborant*, says Forestus, *nisi recte custodiantur, ex aere frigido vel vento, in ileum gravissimum incidunt*. What adds to the difficulty of the diagnosis, is the fact of enteritis occasionally, though it must be confessed, rarely, subsisting apart from vomiting, costiveness, fever, or much uneasiness. Rheumatism of the abdominal muscles is sometimes painful enough, but will lead no one into error. What is termed gout in the stomach, a rare disease, is usually coincident with its disappearance from the extremities; while the absence of constipation and vomiting, locality of the pain, and history of the case, declare its real nature. Colic, oftener actual poisoning, closely verging upon, if not merging into non-inflammatory ileus, with enteralgic pains, and even paralysis, is the result of various metallic substances, as tin, quicksilver, copper, arsenic, and, more especially, lead. Two species of colic, however, have been described: one, *colica pictorum*, painters' colic, saturnine colic, rachialgia, from the operation of lead; the other, *colica Pictouum*, or colic of Poitou, dry bellyache of the West Indies, epidemic or vegetable colic, colic of Madrid or *entripado*, and Devonshire colic. For my part, I believe these alleged varieties are the same. If from epidemic causes, why should the latter be confined, or nearly so, to Poitou, Madrid, or the West Indies? Baker, in his essay on the endemic colic of Devonshire, has, I think, clearly shewn that the lead employed to fasten down the iron cramps that connect the stones of the cider presses, is productive of the disease; and it further seems established that this metal, in some form, is connected with its origin in Madrid, Poitou, and the West Indies. The same symptoms, obstinate costiveness, vomiting, violent abdominal pains, and umbilical retraction, are common to both. There is, indeed, in *colica pictorum*, a wringing pain about the umbilicus, with such unequal retraction of the abdominal muscles as to give the idea of hard balls, with frequent vomiting, and constipation all but invincible. During paroxysms, the patient rolls in agony along the floor, or presses his belly with force against any hard substance. He not only bears, but solicits friction and pressure. I have seen persons, a circumstance adverted to by Fernelius, suffer others to stretch themselves on them; and Elliotson mentions that he actually stood on the abdomen, the individual being thereby relieved. The contortions, grimaces, and even shrieks of the victims of this painful malady, are truly characteristic, and not readily forgotten. The pulse is rarely affected, and, the unhealthy surface excepted, the expression during the remissions is natural. Colic from lead, in the first instance at any rate, is rarely fatal; but it has a great tendency to return, some having experienced it so often as thirty times, the health being eventually broken. Out of twelve hundred cases by Dubois and

Burette during thirty years, in La Charité, twenty in all, or one in sixty, died; and of seventeen hundred and fifty-five treated during twelve years by Gardanne, sixty-four, or one in eighty-eight, perished. Accidental complications, however, may render the complaint considerably more fatal. Andral, who gives several dissections, could discover no change of structure; indeed, the intimate nature of the disease is unknown, some esteeming it inflammatory, some, spasmodic, and others, neuralgic. Pains are often experienced in the extremities, the arms particularly; while the extensor muscles of one hand, sometimes of both, are paralysed. One poor fellow whom I saw, was able to retain the brush in the fingers of the right hand, while he painted with the left, the wrist having lost all power. The paralysis, or drop-hand, is commonly preceded by attacks of colic; in recent cases, it sometimes spontaneously disappears. Colica pictorum is referable to ingestion of particles of carbonate of lead, or their inhalation into the lungs, occasionally, decomposition of the acetate in the stomach. Since white lead has been ground under water, colic and paralysis, from this source, in England at least, have become less frequent. Painters who eat without washing, are liable to swallow what adheres to their hands. Turpentine seems to float off a portion of the pigment, since persons who sleep in newly-painted rooms have been known to experience the disease. The adulteration of wines and ciders with litharge, would oftener induce accidents, were it not from the circumstance of the acruing acetate being comparatively innocuous. Tronchin, Chomel, and others, however, owing, probably, to conversion into the carbonate, relate instances of its poisonous effects. Andral has afforded relief in the paralysis, by strychnia, beginning with small doses and ending with a grain daily. Of five hundred cases of colica pictorum, says this practitioner, received into Lermnier's wards, those treated by bleeding and emollients, proved much more obstinate than when the method of La Charité, consisting of drastic purgatives and emetics, and which never failed or produced disastrous results, was resorted to. I should, however, prefer to this operose, and somewhat empirical procedure, castor oil, with or without turpentine, and croton oil, alternated with opiates, friction, and the warm bath. In a few instances, feces, it is said, have become impacted in the rectum so as to require a scoop.

Enteritis, as regards the muscular coat, demands the same depletory measures, regulated, of course, by the vigour of the individual, force and violence of the inflammation, as the other phlegmasiæ. French practitioners are solicitous to reduce inflammation, English, at the same time, to get the bowels open; and it fortunately happens, that means calculated to achieve the first object, also help to realize the last. The bowels, indeed, will resist the most vigorous cathartics, till some fifteen or twenty ounces of blood being lost, they, perhaps, act at once. In many cases, we are wholly unable to procure a stool till inflammation be on the decline; it is, therefore, for every reason, expedient not to be unduly solicitous about constipation, but to turn our efforts to subdue the inflammation. Repeated bleeding by a large orifice from the arm, copious leeching, or in default of this, cupping over the abdomen, may be resorted to. As time is an object, leeches and cupping-glasses not being always at hand, a few rows of lancet punctures, with common drinking-glasses heated by means of a little burning

paper or spirits, will answer in an emergency. Venesection, however, is the best and most serviceable measure; but some who labour under enteric inflammation, are occasionally so debilitated as only to bear local detractions. In every case, often-renewed stupes with flannel wrung out of hot water, and occasionally sprinkled with turpentine, are advantageous. When the pulse keeps frequent, though no longer hard and resisting, local pain continuing to infest, and we have bled as far as we can venture, we may resort to calomel and opium in full and frequent doses. In several instances, in the course of my practice, where bleeding had been carried to a great extent, the disease only yielded, and then perfectly, with copious sweating, when the mouth became affected. As regards constipation, no means of relieving it, irrespective of subduing inflammation, should be thought of. This kept in view, we have castor or croton oil and turpentine; also, blue pill, extract of colocynth, calomel, scammony, jalap, the neutral salts and senna; I prefer, however, castor oil, with a little turpentine and laudanum, both by the mouth and rectum, repeated alternately every two hours. I have thus, in successive doses, administered a scruple or two of calomel, six or eight drops of croton oil, and, perhaps, half a pint of castor oil, and the same of turpentine, in the course of one case. As much is thrown off by the mouth, the quantity administered is no exact criterion of what is retained. Extreme gastric irritability is sometimes relieved by a blister over the epigastrium, after which medicine will often remain. In other cases, seltzer or soda-water, with essence of ginger, helps to appease the stomach. Once the bowels have been freed from their black pitchy contents, we must take care, by the occasional exhibition of castor oil, with a few drops laudanum and peppermint, that they do not relapse into their previous constipation. As regards what is termed ileus, if the symptoms be such as to indicate inflammation, or if the age and habit of the patient, as Abercrombie observes, do not contraindicate, we should bleed, applying, at the same time, the terebinthinate embrocation, and try the round of purgatives already enumerated. Should the obstruction, however, be owing to internal strangulation, and, moreover, should inflammation and gangrene supervene, we shall signally fail. The latter may take place in cases wherein no obstruction is discoverable after death. I have tried tobacco injections, say fifteen or twenty grains, infused for ten minutes in six ounces of water, with occasional success. In one instance, in which I resorted to this a second time, after all fruitlessly, the prostration, amounting to collapse, was such as almost to render me apprehensive as to the result. To electricity and galvanism, spoken well of by Cheyne and Clarkson, respectively, I have given a fair trial; also to copious injections of raw linseed oil, which came up by the mouth. In one almost desperate case of twenty-seven days' standing, mercury so as to touch the gums, was found of service by Alison. Alternate aperients and opiates, I have sometimes found to succeed best. Abercrombie speaks well of a combination of aloes and henbane as an aperient; he has also found aloes and bismuth, of each ten grains, or ten or fifteen grains of calomel every two hours, to settle the stomach. I once overcame obstruction, though I oftener found it to fail, by throwing cold water about the legs and feet: should there be suspicion of strangulation or inflammation, this measure

is inadvisable. The vinum aloes, in advanced stages, and when the system is exhausted, is most justly enlogised by Abercrombie. I not only found it to subdue ileus, but, taken occasionally in wineglassfuls, to avert it in a lady who had previously experienced the disease. In fact, the means that answer well in one instance, abort in another; nor shall we, indeed, without their assiduons and repeated alternation, succeed in any. Internal strangulation, whatever some may pretend to the contrary, presents no hope of relief; external strangulation demands instant surgical aid; even the taxis is not always without its hazards, especially after delay. In umbilical hernia, says Mayo, the ring being probably large, and the symptoms not aggravated, delay is allowable. He mentions an instance in which strangulation had ensued more than once, and was relieved without an operation; in another, with constant vomiting, tormina, and considerable abdominal tenderness, the patient not being willing to accede to an operation, a drop of creten oil every two hours eventually forced a passage. I saw ileus from strangulated umbilical hernia fatal in a very corpulent elderly lady: feces, in small quantities, passed to the last; an operation was not deemed advisable.

IX—SERO-ENTERITIS, PERITONITIS.

VOGEL and Cullen recognized inflammation of the omentum and mesentery; but it is only since the times of Bichat and Laennec that the subject has been properly elucidated. Peritonitis may be acute or chronic; it may subsist in young, but, in the acute form at least, more commonly in adult subjects. It may, perhaps, be a primary, but, unlike pleuritis in this respect, is more frequently a sequential disorder. We may agree with Dugés and Chemel, that if we except traumatic cases from blows, falls, wounds, and surgical operations, those from strangulation, perforation, effusion, those from puerperal disease, and homicidal attempts to produce abortion, peritonitis is rare. The last of these writers affirms, that, for fourteen years, he has not seen a case which researches after death did not shew to be connected with the conditions above enumerated. In a very few instances, peritonitis has been known to supervene on articular rheumatism and erysipelas. I certainly witnessed an instance in which restricted abdominal tenderness ensued, coincident with the suppression of scapular rheumatism; but I should be chary in affirming that one was sequential on the other. It may be associated with muscular enteritis, and even pleuritis. The symptoms are vomiting, variable local pain and uneasiness, extending more or less over the abdominal surface, anxious contracted countenance, general febrile reaction, a quick and unusually small pulse. The breathing is short, the patient being averse to press down with the diaphragm, as he is also to go to stool or pass water; he is also unwilling to drink, lest it induce throwing off. Costiveness, children's cases excepted, in which it has been said to prove an occasional cause, is not nearly so frequent, unless perhaps a little at the commencement, as in musculo-enteritis. A few cannot bear the slightest pressure, not even the weight of the bed-clothes, while others support it tolerably

well. Bronssais mentions that some did not complain till pressure was made in a lateral direction. The patient lies constantly on his back, the legs a little drawn up. At first, the belly is somewhat tense under the hand of the observer; subsequently, more or less tumefaction ensues. Percussion, owing to slight meteorism of the intestines, is sonorous; when effusion ensues, the result, particularly in the lower portions, is otherwise. Peritonitis, like pleuritis, may be altogether dry; in which case, or before serous or sero-purulent effusion, if we apply the ear or stethoscope, a rubbing sound, from reciprocal friction of the inflamed surfaces, whether covered or not with false membranes, is occasionally audible. Effusion communicates a doughy feel, and more or less sense of obscure fluctuation. In the event of recovery, pain and tension gradually decline; the patient perspires freely, and after a period, varying from one to three weeks, the disease disappears. When fatal, which may be in eight, seven, or three days—eighteen or twenty-four hours even, as Chomel has recorded, death is preceded by cold sweats, small miserable pulse, tense, otherwise relaxed abdominal surface, coma, and, perhaps, convulsions. Vomiting ceases in the last periods, but the bile and other contents of the stomach escape almost spontaneously from the mouth.

In cases of extreme debility, as ensuing in the course of different diseases, peritonitis, like other inflammations, sometimes takes place without any marked reaction. Alteration in the countenance, however, may lead practitioners to examine the abdomen, whereon pressure rarely fails to elicit some expression of suffering. Peritonitis may be restricted to the abdominal lining; to portions of the greater or less omentum, mesocolon, mesorectum, and mesentery; diaphragm, liver, kidneys, psoas muscles, pelvis, uterus, and ovaries; occasionally giving rise to bands of adhesion, perhaps eventually productive of internal strangulation. In these cases, inflammation of the serous covering of the liver, conjoined with icterus, simulates hepatitis; just as sero-nephritis, according to Abercrombie, may lead to ischuria renalis and coma. Peritonitis may affect the infant: Dugés met it repeatedly in the Maternité, as he conceives from cold; rarely in private practice. The belly was tense, sensitive, and constipated; the skin hot and dry, with refusal of the breast, scanty urine, diarrhœa, emaciation, and, in twelve or fourteen days, death. In fortunate cases, the disease terminated at an earlier period. Peritonitis would appear to ensue before birth, of which Simpson has cited instances. I have already adverted to peritonitis from perforation in the course of fevers and otherwise. In a few cases it has occurred after paracentesis. I have witnessed peritonitis and pleurisy, both with effusion, combined. Gasc, in the *Dictionnaire des Sciences Médicales*, mentions falso membranes and pus, not only in the peritoneum, but in the arachnoid, pleuras, and pericardium of one and the same individual. Cruveilhier, in the *Dictionnaire de Médecine et de Chirurgie Pratiques*, describes coincident peritonitis and pleuritis as frequent; and proceeds to observe, that the former is apt to mask the latter. He gives an instance, however, in which puerperal peritonitis and pleuritis were alike latent. According to Dugés, puerperal peritonitis is united with metritis or phlebitis, in one case out of ten; but if pus in the veins be the criterion, one out of three. This disease is most rife in lying-in hospitals, and, from the variable

mortality, some suppose that it assumes different types; a diversity, perhaps, to be accounted for by the presence or absence of pus in the blood. Like ordinary peritonitis, it may be associated, concomitantly or consecutively, with inflammation of the diaphragm, pleura, and pericardium. In a case by Andral, occurring after childbirth, not merely peritonitis, but enteritis, metritis, and meningitis, were present.

Chronic inflammation is idiopathic or consequential. It may ensue partially, from injury, or owing to inflammation extending from some viscus. Inflammation and swelling of the left portion of the omentum may simulate hypertrophy of the spleen, as similar tumours below the umbilicus do enlarged uterus. Indeed, the abdominal parietics, from glandular disease, adhesions, and false membranes, so far as regards tubercular peritonitis, are exceedingly lumpy and unequal. Chronic peritonitis coming on in the most insidious manner, with pallid countenance, loaded urine, perhaps clay-coloured stools, capricious appetite, tumid belly; in every instance in which I have witnessed it, tuberculous in character, and too commonly fatal, with progressive emaciation and evening hectic, may last six, twelve, and eighteen months. The belly here is often large, more or less tender on pressure, and contrasts strongly with the spent ribs, shoulders, back, and extremities. The stools are sometimes natural, at others—I speak from observation, like a mixture of pipeclay and water. The urine is sometimes clear, oftener muddy; indeed, I never witnessed so large a deposit in any other disease. Inclination for food is capricious, but often remains to the last, and the mind, up to the very close, unimpaired. I have seen *tabes mesenterica*, the *carreau* of the French, in connexion with phthisis and affections of the heart; once, and once only, did I witness recovery. Pemberton, in his diseases of the abdominal viscera, avers that in chronic peritonitis the skin and abdominal muscles sit loosely on the tense peritoneum; but it is obvious that when the peritoneum is largely distended, the integuments must participate. In fact, chronic peritonitis, apart from other local disease, tubercles or perforation, can hardly subsist; in other respects, chronic effusion is commonly confounded with, and treated as ascites. In a case of *tabes*, the abdominal parietics, during the early stages, were tense and hard as a board; subsequently, as in others, they became distended. Here, during one day, I could discover tympanitic resonance, while, on the next, or perhaps during the evening of the same day, this would give place to decided fluctuation. Peritonitis, chronic from the first, whether as cause or consequence, almost always subsists in connexion with tubercles. These may be developed, though rarely, in the peritoneal envelope, much more frequently beneath it, but, in my opinion, oftenest in the mesenteric glands. It is matter of doubt, how far they are immediately capable of affecting the contiguous serous membrane; but it is quite certain that during softening, and much more evacuation of the contents, they are fully adequate to do so. Irrespective of communications with the cavity of the peritoneum, perforation may ensue between adherent convolutions; as, for example, the small intestines and colon, which, by unduly accelerating the descent of chyme, hastens the patient's death. Perforation and effusion, however, what from the restricted space left by adhesions, and the septa formed by numerous false membranes, what from the lessened vitality induced by prior

effusion, exercise far less influence than under other circumstances. Partial chronic peritonitis, with glandular alteration, is oftentimes latent, and, perhaps, not detected till death has been occasioned by other maladies. I have only to add, that the sero-purulent fluid collected in the peritoneum, sometimes escapes by fistulous communications with the rectum, vagina, and urethra: Dalmas mentions its evacuation through the intestinal canal, and Abercrombie, through the ring of the external oblique; Peter Frank records two through the umbilicus; Dugés, two others with recovery; and Blackall one, also with recovery, in a girl of thirteen, three quarts of sero-purulent fluid being discharged. In a curious instance of this kind, which came under my own observation, the umbilicus, after being for some time tense and protuberant in a boy of twelve, gave way at night with an audible noise, giving issue to a mixture of pus and serum. The cavity remained open for a considerable period, slowly discharging, and what was conclusive as to intestinal perforation, caraway seed, which the boy had eaten, came away by the aperture.

The appearances after peritonitis mainly consist in copious floccular, serous, sero-purulent, or sero-sanguinolent effusion, with adhesions between the convolutions, and morbid enlargement of the mesenteric glands. Blood, alone, as Broussais and Andral record, may be poured out. In the event of rapid death, there may be no effusion; the red hue of the membrane, however, testifies as to the morbid change. This has been artificially produced by Scoutteten in dogs, twenty-four hours after the injection of bile. Coagulable lymph and false membranes of various hues and thickness, also present themselves. Circumscribed serous or purulent deposits, the probable result of local inflammation, may be connected with almost any portion of the peritoneal surface; they are not very common, yet examples are recorded in the thirty-second volume of the *Dictionnaire des Sciences Médicales*, as well as elsewhere. In the proximity of the liver, such have been mistaken for abscesses. One between the diaphragm and upper surface of the liver, containing a pound of fetid pus, is described by Abercrombie; while others are mentioned in the *Mémoires de l'Académie de Chirurgie*. Gangrene does not ensue, unless in connexion with strangulation and excessive traumatic injury. In chronic peritonitis, free spaces between the convolutions and peritoneal surfaces, owing to adhesive inflammation and false membranes, are, in a great measure, obliterated; hence the scalpel, in such cases, is apt to penetrate into the interior of the intestines. The few existing intervals are filled with turbid purulent serum, and attempts to unravel the convolutions, except in the case of recent adhesions, are fruitless. The whole volume of the intestines, says Rees, in describing a case, was condensed in one mass, and the large arch of the colon contracted to the size of the ileum, with copious tuberculous deposits in the mesenteric glands. In the last dissection of this hideous disease, I found the mucous lining of the intestines everywhere healthy; the mesenteric glands and peritoneum one mass of disease; while the lungs, contrary to the dictum of Louis, contained not a single tubercle. In the next two cases, however, the subjects of which, as well as the first, contrary to what usually happens, had arrived at man and woman's estate, there was a sort of strife between abdominal and pulmonary disease, which should destroy

the sufferers first. In a few instances, it has happened that concomitant tubercular meningitis has carried off those labouring under chronic tubercular peritonitis. The peritoneal surface, exclusive of tubercle and chronic inflammation, displays tumours of various kinds, cysts, hydatids, and cancer, particularly of the omentum. Rostan has met with laceration of the peritoneum in inmates of the Salpêtrière affected with costiveness; and Desault witnessed the same occurrence in a child after a fall.

The clear determination of sero-enteritis as a separate disease, is a modern discovery; it was long, and, too often still is, under the common term enteritis, confounded with other inflammations incident to the intestinal tissues. From puerperal irritation, as well as hysteria, in which there is no inflammation at all, we distinguish it by the absence in the latter of the rapid small pulse, hot surface, and dolorous countenance. Here, when the habit is full, and irrespective of stupor and aperients, it may not be inexpedient to draw a little blood; but the cup and buff incident to the puerperal state must not lead us into error. Rheumatism of the abdominal muscles, to which, Chomel affirms, puerperal women are liable, is unattended with quick pulse or pinched countenance; this really painful affection which I have met with under other circumstances, he says, he has described for the first time. Effusion in the peritoneum, commonly termed ascites, is conjoined with general effusion, anasarca; or it may subsist alone, and prove the result of peritoneal inflammation, acute or chronic, organic disease of the liver, spleen, kidneys, or mesenteric glands. Effusion, clear or coloured, in all the serous cavities, may be met with in the advanced stages of low fever, in general dropsy, and in aggravated morbus cordis; or it may arise from mere imbibition in the last moments of life, oftener, probably, cadaveric. Ascites from inflammation of the peritoneal surface of the liver, a comparatively remediable disorder, is properly distinguished by Osborne, from that which is produced by induration, tuberculation, to which I would add, venous obstruction of the viscus itself. In some instances, as Ayre remarks, chronic inflammation may extend from the liver or spleen, so that, as in other cases, a dropsical effusion at first symptomatic, comes to wear an idiopathic aspect. Simple primitive ascites, says Broussais, always indicates irritation of the peritoneal coat; he would even, on hypothetical grounds, however, extend the existence of this irritation to cases combined with anasarca. Bouillaud and Andral go nearly the same length; and, in effect, it is undoubted that ascites, so termed, otherwise peritoneal effusion, may prove a result of peritonitis, apart from all extraneous visceral disease. Effusion into the serous cavities or cellular tissue is always marked by a harsh dry surface; anasarca and ascites, however, as arising from renal disease, perhaps, more so than the rest. Ascites, in the first instance at least, less frequently ensues in connexion with cardiac valvular obstruction, of the right side it has been averred, in particular, than do anasarca and renal disease: it is, however, a frequent supervention afterwards. Neither is it so often the direct result of profuse hemorrhage, menorrhagia, hypercatharsis, absence of habitual stimuli, hardship, or the febrile exanthemata. I have already adverted to intestinal congestion and hemorrhage from narrowing or obstruction of the portal vessels; the same cause is like-

wise productive of serous peritoneal effusion. The fact, not to advert to the production of ascites and anasarca by Lower, after tying the vena cava, appears to have been known to Morgagni, and has since been further elucidated by Bouillaud and Dalmas. In effect, in the majority of cases of ascites from diseased liver, Bouillaud has shewn that the vena porta is narrowed, if not obliterated. The obstacle may exist in the liver or portal branches; but in those cases of hepatic degeneration, whether cancerous or tuberculous, in which ascites is not met with, it is to be presumed that the circulation is not materially, if at all, obstructed. Should the obstacle, Dalmas observes, subsist in the vena cava or right side of the heart, effusion is not confined to the peritoneum. The fluid varies from a few pints to many quarts, and even gallons. Dame Mary Page, according to Mead, and the testimony on her tombstone in Bunhill Fields, was tapped sixty-six times in the course of sixty-seven months, losing in all two hundred and forty gallons of water, before *placidaque tandem morte occubuit*. He also gives the remarkable case of a young woman who was induced to marry while labouring under dropsy, in hopes that the change might be useful. *At longe secus res evenit*. The belly increased in size with intolerable suffering, so as it were to threaten rupture; worn and spent, she entreated that she might not be left to consume away in constant torture. Won by her entreaties, sixty pounds of limpid serum were drawn off; and from the very day she continued to amend, being brought to bed, in ten months, of a sturdy boy, followed by others, the disease returning no more. This is a rare exception to the common rule, in which the fluid is rapidly renewed after paracentesis. From the disappearance of fat and other causes, the veins of the abdomen wear a blue aspect. Reynaud ascribes this to portal obstruction, which, however, is often absent. I think it not unreasonable to affirm, however, that the pressure which the inferior cava undergoes may lead to this result, as well as to anasarca of the extremities, so common in the advanced stages of ascites. As the spleen and liver are thrust upwards, and the diaphragm cannot readily descend, the patient becomes short-winded and anhelantous. In a few instances, as described by many ancient and modern writers, rupture and escape of fluid by the umbilicus, ensue. Ascites has been known to disappear spontaneously; after copious serous vomiting and purging; also, after diuresis and profuse sweating. Recovery after the exhibition of medicine, however, is apt to be preceded by alternate increase and decrease of the contained fluid. Andral adverts to the singular and important fact of the contents of one serous cavity vanishing to reappear in another. As to the diagnosis of peritoneal effusion, the size and volume of the belly, with the dry emaciated aspect of the surface and extremities, are prominent indications; yet I saw an intelligent medical man labouring under ascites from hepatic disease, quite unawaro of the fact till pointed out to him. One would suppose that fluctuation was always evident; but if the fluid be small in quantity, or the intestines tympanitic, it may not be apparent. In seventeen cases of ascites, says Piorry, there was evident fluctuation in six; in six, it was obscure; in five, absent. This writer speaks of a humoric sound produced by striking on the pleximeter over the seat of the effusion; this I have essayed to reproduce with the ivory disk, so named. Ascites, unfortu-

nately, has been mistaken for pregnancy; at other times, as I have known, the converse has happened, the error being rectified at the end of nine months. Both, however, though rarely, may be combined, of which I witnessed a striking instance in the person of a poor woman. In pregnancy, however, we have the solid circumscribed volume of the uterus increasing progressively upwards, firm breasts, and dark areolæ round the nipples, the health and excretions commonly good, with the subsequent ballottement, placental and fetal circulation. Distention of the urinary bladder, as, also, hydrometra or dropsy of the uterus, are confined to the hypogastrium. Encysted dropsy commonly concerns the ovaries; but cysts, in both sexes, in rare cases, may form over the liver and spleen, as well as other portions of the peritoneal surface. In ovarian dropsy, fluctuation is evident at the summit of the abdomen; whereas, in ordinary ascites, in which, in other respects, the fluctuation is more palpable, this part is tympanitic, the intestines floating, while the sides fluctuate. These distinctions, first adverted to by Peter Frank, have been developed by Rostan. In hydrophoria, the tumefaction does not, as in ascites, commence at the lower part of the belly; it is more apparent, as Van Swieten observes, in one or other of the hypochondria, *in uno vel altero hypochondrio*; the swelling is more circumscribed; there is no umbilical depression, and the position of the patient makes little difference in the form of the tumour. Piorry affirms that dulness in encysted dropsy is greater; the belly, likewise, yields less to pressure, the disease is much more chronic, and the general health, in many instances, little, if at all impaired.

The treatment of acute peritonitis to be successful should be prompt and decided. We must abstract blood locally and generally, keep down undue reaction with tartrate of antimony and digitalis, apply counterirritation, and, if necessary, bring the system under the influence of mercury. There must be absolute prohibition of solid food; thin gruel, whey, and toast water, are the only things we can allow. In infantile peritonitis Billard recommends a leech or two to the abdomen, Stokes to the hand or foot. The bowels may be gently opened by means of a little manna, the infusion of senna, calomel, or castor oil, then a bath, or the belly may be stuped. Billard's recommendation to remove the child from the breast is hardly expedient; if very sick, he will not mind it, otherwise the nurse's allowance may be diminished, and aperients administered. As Dugès observes, children may bring the disease into the world with them, and congenital effusion is recorded by Roux and Ollivier. Abercrombie and Bouillaud unite in enjoining us, in all cases, not to permit too much reaction, since the good effects of depletion are thereby neutralized. The latter advises bleeding again and again, so as to make a decided impression, as indicated by paleness, weak pulse, and some degree of faintness. The first may be followed by smaller bleedings at shorter intervals. After venesection the pulse, as observed long ago, often increases in fulness. As there is a limit to depletion, we may greatly enhance its efficacy by the collateral assistance of tartarized antimony, the tincture or infusion of digitalis. Those who do not bear general blood-letting may be leeches, along with antimonials, low diet, diluents, and gentle aperients internally. The best form of counterirritation is flannel well wrung out of very hot water, and sprinkled with turpentine. A cataplasm of warm

bran, oat or linseed meal, is often of great utility. Warm baths are serviceable; and it might be expedient to employ the long, open one, recently introduced in France, and into which the patient is let down without fatigue, by means of a false bottom, managed by a crane. The foregoing generally suffices; but we have in calomel and opium an additional therapeutic agent of great value. Once the bowels have been opened, and sanguineous detraction has been practised, calomel may be exhibited in the usual manner, along with mercurial frictions on the abdomen. So soon as the mouth is affected, the inflammation commonly ceases; and I have witnessed cases of combined enteritis and peritonitis, after bleeding had been carried as far as prudence would permit, thus removed as by a charm. As peritonitis in very many, perhaps the majority of cases, is a secondary affection, we must endeavour to ascertain the fact. Wounds, so far as may be, should be placed under such circumstances, and surgical operations so performed, as to expose the patient to the least amount of risk; but, should peritonitis ensue, we must hasten to combat it. If, from external strangulation, let this be attended to; if from internal, it is remediless. Peritonitis from perforation is almost uniformly fatal; large doses of opium, by allaying pain, staying the progress of inflammation, and, perhaps, moderating or suspending peristaltic action, may possibly, as they appear once or twice to have done, avert the fatal termination. In such cases purgatives must long be abstained from. As to puerperal peritonitis, bleeding is occasionally advisable; at other times, hot stupes and opium are the substitutes. Brennan recommends turpentine, which, with other measures, I have known useful in ordinary peritonitis. Certain cases which bear depletion at first, require opposite measures afterwards. A lady, says Abercrombie, a few days after labour, was seized with peritonitis, which two bleedings served to subdue. The bowels acted too freely; and she became haggard and exhausted, with clammy skin, feeble and rapid pulse, enlarged and tympanitic abdomen. Wine was now given at short intervals, with injections of beef tea, containing assafoetida and sulphate of quinine, after which the patient rapidly recovered.

This writer, though he expressly advert to the connexion of chronic peritonitis in young persons, in my opinion all but invariable, with tubercular disease, does not perhaps press the fact so strongly as its great importance demands. The occasional production of mesenteric disease, from ulceration in the mucous membrane of the bowels, the possibility of which I am far from denying, has more than once been adverted to. I have, however, in such cases, examined the mucous membrane, and found it perfectly sound. From whatever immediate exciting cause, whether wet, cold, low feeding, or irritation of the mucous membrane, morbid changes in the mesenteric glands arise, I am satisfied that the chronic peritonitis, so named, which we here meet with, is thereby sooner or later induced; just as hydrocephalus or tubercular meningitis is found to ensue after deposition of tubercles in the meninges. Hence the more correct denomination for chronic disease of the peritoneum, with effusion, false membranes, adhesions, and glandular disorganization; and one which, I am persuaded, will eventually be adopted, would be tubercular or strumous peritonitis. In the treatment of so insidious and dangerous a disease, every thing,

as a judicious writer has observed, depends on arresting it at a very early period, afterwards it is probably irremediable. He has, however, seen cases terminate favourably in families which had previously suffered; and it is a well-known fact, that mesenteric and peritoneal disease has been discovered in children who died of other affections. By means of baths, small doses of the hydrargyrum cum creta, flannel bandages, regulated diet and exercise, I removed a large mass of abdominal disease from a child of three years. Here, the belly was swollen and tense, the limbs spent and attenuated, and the countenance anxious; but though the strumous temperament was obvious, the existence of mesenteric tubercles could only be conjectured, not proved. In a boy of twelve, whose sister died of the complaint, the same measures, along with repeated leeching and blisters, were employed; it is now twelve months since, and there has been no return. I may further mention, that I have a girl of the same age, similarly affected, under treatment, who appears to be getting on favourably. Dugès also mentions that he knew two cases of what appeared chronic peritonitis with effusion, cured by a daily vapour bath for some weeks; also chronic peritonitis, with manifest fluctuation, in several children under puberty, removed by a diet composed of soups and farinaceous food, conjoined with abdominal fomentations and decoction of chamomile. I have, however, more than once tried every remedy without making the faintest impression.

When peritoneal effusion, commonly termed ascites, is consequent on sudden exposure to cold, the body being heated—when it follows scarlatina or measles, or when it is the evident result of inflammatory or subinflammatory irritation, we need not hesitate, should the patient's strength permit, to bleed, once or oftener, to open the bowels freely with jalap and cream of tartar, and to exhibit the common saline mixture, with tartrate of antimony and tincture of digitalis. Inflammatory ascites, irrespective of local irritation, is less frequent than inflammatory dropsy, so named, of the subcutaneous cellular tissue. The advantages derivable from venesection in the early stages of acute or sthenic ascites, even apart from peritoneal inflammation, have been commented on by very many practitioners. I have found cases in which diuretics or purgatives had little effect, till the patient, being bled, the effusion rapidly gave way to the combined force of jalap, with cream of tartar, a little squills and digitalis. Sauvages, among others, indeed, mentions cases yielding to repeated venesection, when preceding purgatives and diuretics only served to aggravate the disease, *magis ac magis intumuerat*. In hospital or dispensary practice, however, we must be chary of a measure which persons who have recourse to such institutions rarely bear with advantage. In the event of local disease, I would certainly have recourse to leeching, a mode of depletion which alone may suffice. I have, indeed, successfully drawn blood which was both cupped and buffed in ascites, without other evidence of local disease. In other respects, the earlier and more actively, inflammatory ascites is treated, the sooner will it be found to yield. The treatment of renal dropsy involves, to a great extent, very similar considerations; but of this again. Asthenic idiopathic ascites, much rarer than asthenic anasarca in the symptomatic form, is unhappily too common. In fact, the tendency of the disorder, unless mitigated or checked, is, at all

times, to asthenia; nor is it easy in actual practice to determine, with accuracy, the exact nature of the lesions on which it is consequent. I have met with ascites and anasarca, along with the combined cardiac and renal disease, which, doubtless, originated them. In asthenic ascites, whether with or without effusion in the cellular tissue, I have very often, from the low condition of the patient, found it necessary to order meat and wine, the warm bath and flannel, with bitters internally; after which, diuretics and hydragogue cathartics would often act with the happiest results, snatching the patient from languor and suffering, cheering his path, perhaps permanently, with hope and joy. Such transitions were more easily effected in persons whose cases had been aggravated by neglect and privation, than in constitutions impaired by stimuli and excess. The effusion so striking to the inexperienced, is perhaps of less moment, however, than the visceral lesions with which it is usually associated. Idiopathic ascites, or ascites with simple peritoneal disease, is much more amenable than when complicated with portal obstruction, narrowing of the cava, hepatic, splenic, renal, ovarian, pulmonary, or cardiac disease. In tuberculous cases, indeed, it is altogether incurable. The removal of effusion, however, should not engage attention apart from mitigation, so far as may be, of the morbid conditions which give rise to it. Scammony, jalap, cream of tartar, nitre, squills, and digitalis, sometimes elaterium, have been my principal resort. The surface should be kept warm, a bath being taken occasionally, and flannel worn next the surface. Of mercury taken internally, or rubbed on the abdomen, so as to affect the mouth, which some have found to answer, I have not had much experience. Diaphoresis is further promoted by ipecacuanha combined or mixed with opium. The diet, unless in inflammatory dropsy, should not be too low. Plain roast and boiled, with bread, porter, brandy, or, preferably, gin and water, are commonly expedient, with diluents at discretion. I go as far as a drachm of the compound powder of jalap, with three or four grains of digitalis, and six of squills; or, perhaps, half a grain of elaterium, rubbed up with sulphate of potash, and made into a pill with soap, every six, twelve, or twenty-four hours. Smaller doses, however, may be commenced with, and their effects at all times carefully watched. Ayre has a predilection for gamboge; Bardsley, veratria, the active principle of colchicum; many, again, give a preference to calomel, squills, and digitalis. Besides these, I have tried nitre, broom-tops, juniper, cantharides, the tartrate of iron, and Bacher's pills, otherwise the extract of black hellebore. The extract or decoction of cahinha root is praised by Dr. Francia; it was employed with alleged success on negroes. Monro, Sömmering, and Duverney, have removed ascites by emetics; Eberle and Schmidt-mann, by horseradish; others, again, by means of blisters; and Piorry has succeeded with quinine, when consequent on intermittent fever and hypertrophied spleen. I read in one of the volumes of the *Annali universali* of *Anibale Omodei*, for the year 1834, a very singular case, by Leonida Podrecca, of combined anasarca and ascites in a poor man, one Dorbolo, removed by the continued application, during three days and nights, of small live toads, *rospi*, to the legs and belly. These batrachians produced a sense of urtication, followed by extensive scarifications, and copious urinary discharge. *Appena tras-*

corsa la prima per lui penosa e lunghissima notte, al vegnente giorno, quale non fu l'altrui e sua propria meraviglia, contemplando l'enormi scariche alvine, alternate da insolita copiosissima secrezione di urine. A case indeed came to my knowledge, in which numbers of the common earthworm, *lumbricus terrestris*, stitched to a piece of flannel, were applied, with similar success, at the suggestion of an aged mendicant, to the abdomen of a child labouring under prolonged, and, it was thought, hopeless enteric disease. Physick and Condie speak well of one part of carbonate of potash to two of cream of tartar. Guibert, in the *Revue Médicale*, has recommended abdominal friction, with equal parts of the tinctures of squills, digitalis, and colchicum, in common or camphorated oil. Graduated pressure to the abdomen, by means of a laced stay or bandage, has been proposed and resorted to by certain French and Italian practitioners; and, by inducing diuresis, and perhaps, in a few instances, adhesions, has been found to answer. In any case, however, the belly should be well swathed, which keeps the surface warm and supports the parts. The injection of air and vapour into the peritoneal cavity is altogether hazardous and unjustifiable. Tapping should only be performed in the last extremity, when every remedy has failed, and when the sense of suffocation, from pressure on the diaphragm, is extreme. Paracentesis may be followed by peritonitis, not to mention hemorrhage, and, in a few rare instances, recovery; and, as Osborne observes, condemns the patient to the perpetual repetition of a disagreeable and painful operation. It is, at any rate, hardly admissible concurrently with pulmonary or chronic peritoneal disease; or, as Astley Cooper remarks, when the paucity of fluid exposes some viscus to the action of the trocar. The linea alba appears preferable; a bandage is used during and after the operation. When the fluid is evacuated, a little sticking plaster is required. In the unhappy complication of pregnancy and ascites, the sufferings of the patient have suggested paracentesis, which Scarpa advises between the ribs and margin of one of the rectimuscles on the left side; but Ollivier prefers puncturing the umbilicus when prominent. Pregnant women, not dropsical, it is said, have been tapped; but so disastrous an occurrence, it is to be hoped, will never occur again. Tapping, not to mention more formidable operations, has been resorted to, in the case of encysted ovarian dropsy, without success.

X—PILES, HEMORRHOIDS.

HEMORRHOIDS are most common in females, but some say in men. They may be internal or external; and discharge blood, mucus, or nothing at all, in which last case they are termed blind piles, or *mariscæ*. Though rarely seen till after puberty, Gendrin has met with them in a child. Sanguineous discharges may ensue without piles, but the latter commonly precede. The symptoms, which come on in paroxysms, consist of a feeling of weight extending down the back and loins, with heat and soreness in and about the anus. The patient's sufferings are considerably aggravated, particularly on attempting to move about or go to stool, by protusion of the tumour, and its strangulation by the sphincter.

which often induce absolute torture. This condition, after some days, gradually subsides, with or without the discharge of blood or mucus. In some cases, there is merely an uneasy, gravitative sensation in the rectum, which, after continuing some hours, goes away. If at night, the patient is tempted to rise and strain, which often procures relief. The discharge may merely tinge the feces, or amount to a pound or more of blood: I have seen some become pale and almost exsanguine. As for the mucus, which has been referred to a species of subacute inflammation, it is fetid in character, and variable in quantity. Piles commencing with a slight shew may go on with the irregular exacerbations peculiar to the disease; in other cases, after an abortive attempt to ingraft themselves on the constitution, disappear. In some instances, they are accompanied with more or less prolapsus; in others, with rhagades or fissures in the rectum, both greatly to the aggravation of the disease. It is curious, as Gendrin remarks, that while one attack of hemorrhoids induces these fissures, another, by altering the relation of the parts, may lead to their cicatrization. The tumours, tense and livid during strangulation, vary in size from a pea to a marble. Peter Frank has seen them large as a goose egg; old and undistended, they often become long, relaxed, and pendulous, like the wattles of a cock. In a few instances, strangulation, by inducing gangrene of the tumours, as Ravaton observes, frees the patient for life.

Burnes is of opinion, that the hemorrhoidal tumour is made up of thickened cellular tissue covered with mucous membrane, which, from exposure, eventually becomes insensible and skinny. Raige Delorme, and Berard, maintain that it is primarily varicose; in fact, a dilated vein more or less tortuous, with or without laceration. Inflammation setting in, coagulable lymph is poured out, adhesions form, the tumour loses, wholly or in part, all communication with its parent veins, and if the adhesive process continue, the erectile spongy mass becomes solid. In some cases, there is a central cavity, with perhaps one or more foramina leading to the outer surface. On one occasion, Colles, after slitting up the rectum, discovered the hemorrhoidal vessels, large as crow quills, each ramifying into a pile. According to Gendrin, the mucous surface of the internal sphincter is the commonest seat; he has, however, seen these peculiar tumours some inches higher up; Petit even met with them at the sigmoid flexure of the colon.

The hemorrhoidal has been averred not less natural than the menstrual flux, but this assertion is incorrect. It may, however, be not merely compatible with health, but exonerate, in a measure, the individual from apoplectic and other attacks. Piles from neglected bowels, also pressure of the gravid uterus on the hemorrhoidal veins, may be of temporary frequency. The venous system of the lower abdomen being without valves, increased pressure co-operates with other exciting causes. Piles, according to some, are apt to come on after cessation of the menses; they usually decline, however, in advanced life. Constipation is a powerful predisposing cause. I have known costive persons to experience pain in the rectum, and pass stools tinged with blood; yet, once the bowels were properly attended to, all uneasiness disappeared. Pernicious neglect in this respect, in women particularly, is often provocative of attacks. Those of a dry adust temperament, as it is termed, are more prone to constipation, and,

consequently, to the disease, than persons of lax, easily-regulated bowels. The over consumption of rich, nutritious food, and of stimulating liquors, proves an incentive to piles, which here act as a sort of safety-valve. An individual of sedentary habits, and keen relish for indulgence, became fat, plethoric, and costive. Hemorrhoids, discharging from half a pint to a pint of blood, now appeared; but even this proving insufficient, symptoms of apoplexy arose, which were only subdued by bleeding, starving, purging, and a seton in the neck, with plenty of exercise, after which, neither piles nor cerebral congestion returned any more. Hemorrhoids, however, may subsist under conditions—advanced phthisis, for example, very different from those in which they ordinarily originate.

We are properly advised not to attempt the cure of piles till the constitution has been prepared for the change, otherwise we incur risk of apoplexy or hemoptysis. Spontaneous cessation of the hemorrhoidal discharge may prove the result, as well as the source of illness. Cold applications have sometimes been productive of serious consequences: Calvert and Burnes saw fever thus induced. Gendrin mentions a robust joiner, in whom the disease not being mitigated by the discharge of blood, the man applied pounded ice through the night, followed next day by injections of ice-cold water. These caused the piles to shrivel up and become flaccid; but headache and giddiness ensued, and, though bled in the arm, he shortly after fell senseless while in the act of stooping. Copious effusion was discovered in the left optic thalamus, while the lateral ventricle was distended with blood. On the whole, tepid lotions, at least during the paroxysms, to which may be added sitting over warm water, are preferable. Manna, electuary of senna, magnesia, or sulphur, may be employed to regulate the bowels. The confection of black pepper, the basis of Ward's paste, also injections, when they can be borne, are found serviceable. In most cases, Burnes' precaution of administering the aperient in the morning, so as to allow the patient to lie down, and thus evade the pain consequent on forced defecation, is advisable. A drachm of the nitrate of potash, three or four times a day, was recommended by Stahl: copaiva has several advocates. Among external applications, Cullen recommends nut-gall ointment, Burnes, a drachm of black hellebore to an ounce of lard. This last induces considerable uneasiness, which goes off after an hour or so, yielding proportionate relief. The bougie, according to this writer, by facilitating the return of blood from the tumours, and replacing the mucous membrane, exercises a very desirable influence. When piles are strangulated, they should be replaced. Gendrin finds irritability of the mucous membrane allayed by a solution of the nitrate of silver. I have tried opiate suppositories and belladonna ointment without much advantage. The expectant treatment to which we are frequently reduced, is often most expedient. When the tumours are large and painful, Gendrin and others advise the actual cautery, more formidable in name than reality, as counselled by Hippocrates. The iron, observes Sabatier in his *Médecine Opératoire*, must be olive-shaped, and brought, while incandescent, in contact at several points; inflammation and suppuration, the tumours, with all their attendant suffering disappearing, are the result. No hemorrhage takes place, the eschars fall off, and the parts cicatrize without serious consequences of any kind.

The only precaution is to maintain the tumours by means of suitable forceps, *pincers airignes*, without the anus during the operation; in addition to this, the adjacent parts may be covered with wet paper. Excision, particularly in erectile hemorrhoids, is sometimes attended with serious hemorrhage, and, should the parts not immediately heal, much eventual distress. When the tumours, indeed, are exterior to the anus—more cutaneous excrescences, they may be removed without risk. In the event of an operation, the patient, for some days, should live low and take aperients, to which some would add cupping over the sacrum. Sometimes he has to strain a little, to bring down the tumour, or we may have recourse to the speculum. The plug, as employed by Petit, and cauterization by Dupuytren, does not always guard against hemorrhage, of which the former witnessed a fatal instance. Astley Cooper, at first in favour of excision, afterwards withdrew his countenance; in fact, it has led to tetanus and peritonitis. The ligature which, on the other hand, produces excessive pain, and even symptoms like those of strangulated hernia, has its advocates. It should be of coarse waxed silk, and, as Mr. Copeland advises, tightly drawn and double tied. If the tumour be large, a double ligature, of different colours, may be passed through the base, and tied on each side. If high up, a double canula may be resorted to; or it may be brought down, as Astley Cooper recommends, by the forceps and tenaculum. The contingent danger might perhaps be neutralized by applying the actual cautery or the nitrate of silver after ligature. Accidental suppression of the hemorrhoidal discharge, occasionally inconvenient, or even dangerous, demands drastic aloetic purgatives, sitting over warm water, and leeches to the rectum. In other respects, abstinence and moderation are not less important in a prophylactic than a curative point of view.

XI—ENTOZOA, INTESTINAL WORMS.

It seems one of the conditions of animated being to be subject to parasitic dependents. Among the more remarkable of these are intestinal worms, the *Engeweidewurmer* of the Germans, the helminthi or entozoa of modern writers. Four species infest the intestines of man, as the *ascaris vermicularis*, or small thread worm—the *trichocephalus dispar*, *trichuris*, or long thread worm—the *lumbricus*, and *tænia*. The first of these, also termed the *oxyuris vermicularis*, or maw-worm, is mostly met with in the rectum of children. The male is from a line to a line and a half long; elastic, white, with an obtuse extremity, and intestinal canal, spiral towards the tail. Bremser could only see the male organ in the *oxyuris* of the wild rabbit. The female is four or five lines in length, the alimentary canal surrounded with oviducts. *Ascarides* increase in size the first third of their length, then taper to the tail. They are often ejected, and, being then very lively, have been termed *ascarides*, from *ἀσκαρίζειν*, to leap about: the eggs even are in constant motion. They mostly abound in the rectum; but, in a few instances, have migrated to the urethra and vagina—the *ἀσκαρίδες ἐν τῷ αἰδοίῳ* of Hippocrates, where they induce very inconvenient pruritus.

Morgagni appears to have known the trichuris, but it was long confounded with the preceding species; though, as Wrisberg observes, it would have been sooner discovered, if sooner looked for. In 1770, a student of Göttingen having punctured the colon of a child, a number escaped, to which Buttner applied the appellation. Several soldiers dying at that period of fever, Röederer and Wagler, finding this worm in their remains, connected it with the disease. It is not uncommon—sometimes one, oftener many, in the human subject: Rudolphi once discovered a thousand together. Trichurides affect the vicinity of the ilio-cæcal valve; but Cruveilhier has seen them in the small intestines. They are met with in various reptiles, as well as in the mammalia, large and small. Like the ascaris, the male is the smaller; it is, however, from an inch and half, to two inches long—white, but sometimes coloured from its food. The filiform extremity, which, as Müller shews, is the head, comprises two-thirds of the worm, and is generally firmly impacted in the intestinal parietes. The free, or large extremity, as Rudolphi observes, is spiral in the male, straight in the female—*corpore maris spiraliter involuto, fœminæ subrecto*.

The ascaris lumbricoides, or lumbricus teres, has been known from the earliest times. Common in children, it is about the thickness of a writing quill, and rarely exceeds nine inches or a foot in length; young ones are seldom seen. Lumbrici are oviparous, and divided into male and female. The body is cylindrical, elastic when dead, and pointed at both ends, the head particularly—a circumstance, among others, which distinguishes it from the lumbricus terrestris, or earth-worm. The intestinal canal may be seen running towards the anus, the body white, or tinged, according to the ingesta. A curved tail, whence sometimes issues a double penis, distinguishes the male. These worms are of wandering habits, sometimes leaving their usual nidus in the small intestines for the large, whence, in fevers, as in other cases, they escape by the rectum. They also proceed upwards, and may be evacuated through the mouth or nasal fossæ; and have even been known to creep into the larynx. Lumbrici occasionally penetrate into the pancreatic and gall ducts, as well as by means of perforations, into the peritoneal cavity; circumstances that led to the erroneous supposition of their being able to force their way through the soft tissues. Peter Frank once saw eighty collected in one mass; he also relates an instance in which the bowels were crammed with them. Dall' Olio, who describes his own case, passed four hundred and fifty in a fortnight.

Two varieties of the next genus, the tænia lata, and tænia solium, have been described. Tænia lata, bothriocephalus, broad tape-worm, or *Bandwurm* of the Germans, is principally met with in Poland, Russia, Switzerland, and some parts of France. It is from twelve to twenty feet in length, about six lines, though Rudolphi possesses one an inch across, white, and articulated. Separate portions of the tænia lata, as well as of the tænia solium, expelled at different times, have given rise to unfounded relations of their enormous length. The head, rarely seen, owing to the worm not being discharged whole, is at the smallest extremity, and presents a couple of lateral depressions or trenches, whence the term bothriocephalus: in the midst is a central aperture, probably for taking in nourishment. Occasionally the tail, which some have therefore mistaken for the head,

is bifid or cleft. There is little or no neck; the parts adjacent, unless when expelled in one mass, are filiform, and apparently not jointed. This worm, as well as its congener, is androgynous, and presents on the flat portion of each joint, in the *tænia solium* on the edge, an opening surrounded by oviducts, and sometimes, posteriorly, a smaller one, whence, in some cases, a small dart, probably the male organ, is seen to issue. Fecundation only ensues in a portion of the articulations; which, thereupon, become narrower, lose their nutrition, and die at the period in which the eggs are fit to be discharged.

Tænia solium, *Kettenwurm* of the Germans, varies from ten to twenty, occasionally thirty feet in length. Several, notwithstanding the name, have been discharged from the same individual: De Haen saw thirty, and Bremser two and three. I have met with several in dogs: Bremser states seventy or more in the same animal. An unmutilated worm, owing to the fecundated extremities, the *tænia cucurbitina* of old writers, being detached before the superior joints arrive at maturity, has not been met with. The head, which few have been able to inspect, requires the aid of a magnifier. When obtained by washing the stools, it is about the third of a line, though the rest of the body, from its varying contractions, be from three to six lines in breadth. It is of different shapes, and provided with four suckers, mistaken by Andry for eyes. In the centre is a protuberance with a minute orifice, sometimes presenting a double row of hooks. The neck is flat and unarticulated; then come the first joints, much shorter than they are broad, and, as in the specimen before me, rounded at their margins. One or two white lines, looked on by Rudolphi as alimentary canals, pervade the worm, which, when alive out of the bowels, is in constant motion. Each individual comes into existence entire; and, though it may lose a portion of its joints, these, the germs excepted, retain no separate vitality. One of Bremser's plates, white on a black ground, presents the figure of a double *tænia*. Besides the foregoing, the larvæ of various beetles, as of the moth, common fly, and the *œstrus* or gadfly termed bots, besides lizards, and other reptiles, have gained admission into the stomach. A most singular instance is recorded by Piekells, of a girl in Cork, who, after swallowing earth from a grave, voided, during two years, both by vomiting and stool, some thousands apterous, dipterous, and coleopterous insects, in various stages of their growth.

In the great majority of instances, worms give rise to no decided symptoms: children in the best apparent health are known to discharge them; nor is there any certain pathognomonic sign short of their expulsion. Anal and nasal itching, pale and tumid countenance, tense and swollen belly, even coma, strabismus, and dilated pupil, arise from other causes, as, indeed, they sometimes do from worms. *Ascarides* and *lumbrici* are so common in children, that it is absurd to ascribe every concomitant disease to their presence. For all we know to the contrary, these parasites may subserve some important purpose in the economy. A priest in Moravia, says Bremser, who enjoyed perfect health, happened to void a *tænia*, after which, for three years, he tried every remedy that physicians and charlatans could devise. He passed no worm, but became reduced to a skeleton, and so weak that he could hardly stand. Cruveilhier, also, tells us of a spinster who perished the victim of her monomaniac obstinacy in taking active reme-

dies for imaginary tænia. A child, adds this writer, cannot grow thin, or labour under diarrhœa, fever, vomiting, or convulsions, without worms being instantly inferred, and the vermifuge most in vogue, resorted to. Formerly, almost all febrile affections, those of childhood especially, hence termed worm fevers, were so referred. Still, instances, real or alleged, are on record, which prove the occasional ill effects of their presence. Courbon in Bremser, relates sudden death in a woman in whom upwards of one hundred were rolled up in balls. In another from Campedon, the cœcum and colon were stuffed with lumbrici. A youth of sixteen could not put his foot on any object without syncope; anthelmintics expelled several worms, after which he recovered. Hufeland tells of a man who saw every thing yellow when fasting; a vermifuge set all to rights. Not to mention cases of aphonia, paraplegia, mania, and chorea, Bremser relieved a boy of nine from epilepsy of two years' standing, by expelling tænia. A girl of eleven was tormented with obstinate cough; vermifuges were given, after which she discharged fragments of this worm, and the cough ceased.

The five parasites above described are never seen at large, whether in the soil or in the water, and invariably perish, whatever be the medium in which they are immersed. There is, therefore, no ground for Brera's assertion, that intestinal are merely terrestrial worms modified by their altered position. Entozoa are immutable in character, and provided with generative organs after the fashion of more perfect animals; yet Bremser, not to mention Guérard and others, advocates the doctrine of equivocal generation. The structure of a worm is simple, but it is a wide remove from inorganic matter. Bremser, as if it proved anything, asks if spontaneous generation be less intelligible than generation by the sexes. The analogy of spermatric or infusorial animalcula, whatever Treviranus or Pallas may say, is inconclusive, were they even less immutable than their gigantic fellow-beings. The spontaneous evolution of new forms of existence in the midst of brute matter or the living tissue, has been often asserted, but never proved. Infusoria do not appear in distilled water, pure mineral or carbonaceous matters whence air is excluded. As to the manner in which worms gain admission into the intestines, we are ignorant; Good's supposition that the eggs are floated about in the atmosphere, is gratuitous. Children, however, are so liable, that few, perhaps wholly escape: as they grow older, their constitutions alter, intestinal mucus is lessened, the parts acquire greater vigour, and the infliction disappears. In other respects, bad or insufficient food, unripe fruit and vegetables—some say the absence of salt, inadequate exercise in the open air, cold, damp, gloom—in fine, whatever debilitates and lowers the organization, must tend to the production and multiplication of these parasites at all ages.

In the treatment, we have to destroy existing worms as well as to alter the verminous diathesis; still, it is necessary to order our remedies so as not to do more injury than the evil which we propose to combat. Some anthelmintics, as tin and cowhage, act mechanically; others—worm-seed, Indian pink, bastard cabbage-tree, naphtha, pomegranate bark, male fern root, with bitters generally, as poisons: while castor oil, aloes, scammony, jalap, gamboge, neutral salts, calomel, and more especially, turpentine, as cathartics. Anything, indeed, that accelerates the peristaltic action, and dilutes the intestinal mucus which is

the usual nidus, favours expulsion. Worm powders, as they are termed, ordinarily contain jalap, scammony, rhubarb, or gamboge, a little calomel and cream of tartar, rubbed up together. They all do better after a little preliminary fasting and slop diet. *Trichurides* were only once discovered in the stools by Bremser; as for the oxyuris, though one of the most troublesome, it is also the least dangerous of entozoa. Here we employ a gentle purge, followed by enemata, perhaps one or two in quick succession, composed, as Martinet advises, of milk with plenty of sugar; otherwise, a dilute solution of the sulphate or muriate of iron, salt and water, cold water, decoction of aloes, or a drachm or two of turpentine in gruel or starch. Some practitioners advise the insertion of a candle, or the finger well greased. Cruveilhier mentions a child of nine, who was nightly awakened by intolerable pains in the rectum, which he pressed, dragging himself crying through the room. On examination, ascarides were seen moving with great vivacity in the folds of the anus; and mercurial ointment being once or twice applied, removed the effect with the cause. Should these little creatures gain admission into the vagina, injections similar to the foregoing will yield relief. *Lumbrici* are not so invariably got rid of in advancing life as ascarides. Having kept the patient on light diet for a day or two, a dose of the oleum ricini, calomel with jalap, and scammony, or aloes, may be given towards evening; in the morning, from a teaspoonful to a tablespoonful of turpentine, followed after an hour or two by a bowl of warm tea or gruel. Than this procedure, which may be reiterated once or oftener, I have found nothing more effective. It answers almost equally well with the tape-worm, though the structure of this parasite constitute an impediment to its prompt expulsion. In some cases, I succeeded completely and at once, while in others, the disease, though mitigated, was not removed. I tried the fern and pomegranate, as well as other vermifuges, but found none of them so efficient. A preparatory low regimen, as toast and tea, with prior purgation, I find an important requisite, since the tender parieties of the worm are thereby better exposed to the action of the drug. Turpentine enough must be given to act on the bowels; an ounce will do for some, others require two; Pickells went so far as six. Well washed, which removes much of its peculiar flavour, it may be given alone, or with mucilage, honey, capillaire, yolk of an egg, and with or without a little peppermint and laudanum. Should strangury ensue, which rarely happens after purgative doses, diluents, camphor, opium, and patience, ensure its speedy subsidence. Once only did I witness hematuria, and that was in a fat gross subject, who would submit to no restrictions. The slight giddiness which sometimes takes place, soon goes off. Chabert's empyroumatic oil, which consists of three parts turpentine in one of oil of hartshorn distilled, is efficient, but disagreeable. Bremser who proclaims success in hundreds of instances, both in the solitary *tænia* and *bothriocephalus*, premised an electuary composed of santonica seeds, valerian, jalap, sulphate of potash and oxymel of squills, followed by jalap, senna, and sulphate of potash. Other methods, often kept secret, usually consisting of gamboge or such like drastic purgatives, have had their advocates. The fresh bark of the *punica granatum* has been found very efficient abroad. Madame Nouffer of Berne, obtained great celebrity by employing the powdered

leaf of the filix mas, preceded by emollient enemata composed of infusion of mallows, salt, and olive oil, then a bolus of calomel, scammony, and gamboge.

XII--HEPATITIS, HEPATALGIA, ICTERUS.

As to the general signs of hepatic inflammation, there are fever, hot dry surface, perhaps icterus, and uneasiness, not only in the liver, but other points. The foregoing, however, along with a gnawing pain shooting into the right arm and shoulder, vaguely referred to a nervous connexion, are often absent. The acute form, if well marked, is easily recognized; the chronic, however, may be so stealthy, that incurable disorganization may ensue before the practitioner is aware. Several cases are described by Andral, in which neither jaundice nor pain in the right hypochondrium excited alarm. In one, the viscera of the head, thorax, and abdomen, were alike apparently free, till an incision being made into the liver, pus gushed forth. Pain, observes Ballingall, is not so urgent as are languor and listlessness entailing utter apathy and despondency. In the sub-acute disease, the pulse affords no precise criterion till its increased frequency with rigors, thirst, and restlessness implies the formation of matter. Kennedy here adverts to nightly exacerbations. The alvine discharges are costive, it may be dysenteric; the urine, often yellow before the skin and conjunctiva, the stomach irritable and throwing off its contents. In a case by Ballingall, pain subsisted in the bowels, the author apparently regarding it as one of remittent; sub-peritoneal abscess, however, of the right lobe was discovered. In others, pain, increased perhaps on inspiration, was in the right, sometimes the left hypochondrium or umbilicus, and once extended to the shoulder. Epigastric gnawing was most common in Abercrombie's cases, but the symptoms were sometimes so obscure as to attract no attention to the seat of disease. Soreness, however, as Andral observes, like what we find in rheumatism, shuffles about, sometimes affecting the whole, or a point of the hypochondrium; even to the last false rib, posteriorly, beside the vertebral column; lastly, the loins; in fine, wherever the enlarged liver may be situated. The right lobe is much more frequently inflamed than the left; both, however, may be implicated. Deep-seated inflammation is attended with gravitative uneasiness for weeks or months, ending in suppuration at last. Portal mentions a lady, who, after menstrual suppression from mental emotion, was seized with epigastric pain, fever, jaundice, abdominal distention, dyspnoea, hiccough, and death on the ensuing day. The liver was infiltrated with bloody serum, and false membranes, extending to the diaphragm, subsisted on the upper surface. Inflammation of the peritoneal coat signalizes itself by general fever, with pain and soreness towards the hypochondrium, sometimes lancinating under the margin of the ribs, and simulating plenritis. Some ascribe the lacerating sensation in the right shoulder to thoracic inflammation, and, indeed, coincident plouro-pneumonia has been met with. Naumann refers it to friction of the ligamentum suspensorium hepatis against the diaphragm. In some instances, there is slight cough. The prominence, if any, in the

right hypochondrium, is variable. Many are unable to lie off the right side, others cannot abide the left. Inflammation of the under surface is oftener characterized by icterus; the great vessels going into the porta of the liver, also the gall-bladder, are occasionally implicated. A species of hydrophobia has been alleged; in a case of this kind, Peter Frank found a lumbricus in the cystic duct. In hepatitis of the left lobe, so much thinner and smaller than the right, swelling and uneasiness are proportionably relegated towards the epigastrium and left hypochondrium. This is more especially the case, when, from enlargement after periodic disease or otherwise, the viscus extends to the borders of the spleen. Some say pain is felt in the left shoulder. From the circumstance of the lobe on this side lying over a portion of the stomach, as well as its proximity to the duodenum and colon, its diseases and theirs are reciprocally mistaken. The lobulus anonymus, anterior, or quadratus, and the lobulus Spigelii or posterior, are severally liable, but as for the differential diagnosis, it is most uncertain. Twining, indeed, mentions tension of the right rectus muscle in central abscess of the liver. In chronic hepatitis, the symptoms are more moderate, the result longer deferred. The fever is often almost null, or only comes on in nightly paroxysms; the mouth and tongue being white and pasty. In India, the complexion is sallow—but in America, and elsewhere, I have witnessed a brick-red flush; urine scanty with a reddish sediment, while the stools were dark, white, yellow, loose, or costive. Some lose flesh, others, however, display a sort of morbid obesity. Acute often supervenes on chronic disease, in India especially, where few die of a first attack. A few merely despond, many are actually wretched—those especially, who, isolated in remote stations, pine for the sunny fields of youth, and the homes which, perchance, they shall never see again. There are a peculiar fulness, tenseness, and oppression, which continually recal the sufferer to a sense of his situation. I have seen some emaciated to the last degree, with sallow collapsed cheeks, sunk eyes, prominent ribs, swollen protuberant liver, ascites, and anasarca.

Cholecystitis and icterus, usually connected with hepatic disease, may subsist together or separately. The symptoms are not always well marked, but local pain, fever, and vomiting, are among the most urgent and probable. In some cases, inflammation of the gall-bladder seems consecutive on duodenal affections, in others, it is distinct. The mucous membrane may be ulcerated, and the subjacent tissues infiltrated with serum or pus. Sometimes the cavities of the bladder and ducts are greatly lessened, or even obliterated. Perforation, if into the peritoneum, as in one instance by Bell brought before the Royal Medical and Chirurgical Society, is marked by fatal inflammation; but it may ensue externally, of which, with or without discharge of biliary concretions, cases are recorded by Boyer, Chelius, Vogler, Richter, Abercrombie, and Lizars. Walker and Reynaud relate effusion of bile into the duodenum and colon. In an example by Carswell, this fluid escaped into a circumscribed cavity formed by adhesions of the epiploon, simulating abscess, as is also the case, though the symptoms be more rapid in their invasion, in the event of distention of the gall-bladder from retained bile. Petit, on one occasion, had actually made a first incision, but the supposed abscess having suddenly sunk, this able and candid practitioner declared that the swollen gall-bladder would soon

discharge its contents by the bowels, which, in effect, ensued. Cline, also, once evacuated twenty ounces of gall; but here, Delpech's caution, of not operating till inflammation extending to the surface affords presumption of adhesions, must be kept in view. Pus, however, as well as serum, is sometimes present. Occasionally, the ducts, the duetus communis especially, are distended. Baillie records an instance in which the latter was nearly an inch in diameter; and Richter mentions a patient who died icteric, though the gall-ducts were enlarged. In a case by Andral, in which tumefaction, with icterus and pains in the right hypochondrium had been referred, during life, to enlarged gall-bladder, there was intense redness of the duodenum, extending to the common duct; the hepatic duct was ruptured from distention, with the production of peritonitis and yellow purulent effusion. A man of thirty also, after acute pain for two days, hot skin, quick pulse, icterus, and obstinate constipation, displayed a pisiform tumour, referred to the gall-bladder, extending from the right hypochondrium to the crest of the ilium. Twenty leeches were applied to the anus, with barley-water injections, and pediluvia; in a few days, the swelling, icterus, and fever, had disappeared. In another, chronic inflammation ended in obliteration of the common and cystic ducts, softening, and rupture of which the patient was sensible, peritonitis, and death. In the next, after a blow from a bar of iron, there were obliteration of the cystic, with dilatation of the hepatic ducts, icterus, granular liver, and ascites. Transformation of the common and cystic ducts into fibrous cords, with atrophy of the liver, icterus, and ascites, characterized another case. In the last, the liver was cancerous and enormously enlarged, the gall-bladder filled with pus. The patient, who was of a straw yellow, had experienced pain in the right hypochondrium, with icterus and ascites, and sank rapidly.

Hepatitis may terminate in resolution, suppuration, induration, and other morbid changes. Of four individuals, says Andral, who entered La Charité, after the infliction of external violence, the first presented hepatic abscess, the second hydatids, the third cancer, and the fourth atrophy. The disease may prove fatal in the inflammatory stage, or during subsequent conversions. Resolution is denoted by cessation of pain, fever, and icterus; suppuration, however, is not always marked by rigors, with subsequent fever and sweating. When we hear of patients, says Ballingall, not to add the testimony of Abercrombie, Andral, and, indeed, all practical men, dying suddenly with enormous abscesses before we dreamt of, it should instil the necessity of close attention to the insidious attacks which induce such results. When the disease is quickly fatal in the acute form, one or both lobes are often almost wholly converted into matter; sometimes, as Annesley remarks, the abscess is bounded by the peritoneal coat. In some cases, there is but one large abscess, in others, a number of small ones; Murray, in the Medical Gazette, mentions three in the right lobe. They are attended, as Louis and Andral have shewn, by surrounding reddening and softness, with which those small purulent collections ensuing after phlebitis are not. I met abscess in one instance, in the dissecting-room, which flooded the abdomen, the table, and the floor. Diemerbröck mentions one in which there were eleven pounds of pus. Icterus has been known to take place here, though bile obtained free admission into

the duodenum. Sometimes adhesions form, the abscess communicates with the lungs, and its contents are coughed up through the bronchial tubes. I know a retired Jamaica practitioner, in whom this occurred a few years back; the gentleman, though far on in years, is now well and hearty. Abercrombie tells us of a lady, who, after purulent expectoration, occasionally amounting to a couple of pounds, was freed from hepatic tension and enlargement, with perfect recovery. Sometimes matter is evacuated into the chest, and Portal relates how it pointed in the right axilla. Morand, making an incision in ordinary empyema, as he supposed, was surprised to find matter flowing outside the pleura. Bajon, also, gives an instance in which pus, after admission into the lungs, contrived, by another channel, to regain the abdomen. It has, however, not to mention the external parietes, been known to escape into the stomach, colon, duodenum, peritoneum, gall-bladder, spleen, and kidney; also, to fuse along the cellular tissue, by the hip, thigh, and ankle. Smith, a transatlantic practitioner, relates the bursting of hepatic abscess into the pericardium—Piorry into the inferior cava, with sudden death. Johnson sides with Malpighi in thinking that matter often finds its way by the hepatic ducts.

The cirrhosis of Laennec is looked upon by Andral as hypertrophy of the yellow tissue of the liver. Enlargement with softening is a common result of periodic fevers, as well as of hepatitis. Atrophy without pain or icterus sometimes precedes ascites. Morgagni, in his twenty-second epistle, adverts to a case in which the spleen attained the size of the liver, whereas the latter was shrunk; and Andral describes it as no larger than a common-sized apple. Softening and hardening, one or other, may be consequent on inflammation. Portal appears to have confounded diffuent softening with mortification. Annesley, in his diseases of India, never met with hepatic gangrene; Chisholm in his diseases of tropical countries, mentions liver which resembled rotten cork. Andral, however, describes the vicinity of an abscess as converted into black, fetid, and gangrenous putrilage. The cellular and adiposo tissues excepted, the liver, according to Carswell, of all the compound organs, is oftenest melanotic. Soft cancer, medullary sarcoma, may implicate the liver; in a caso by Abercrombie, it resembled brain. Rostan says that it is most common in the aged, and consecutive on gastric cancer. It is marked, during life, by local, not lancinating pain, an ieteroid sallow hue, emaciation, dropsy, and debility. Icterus and pain, however, are often absent. In a case by Andral, with cancer of the gastro-hepatic epiploon, it terminated fatally in three weeks. In another, the disease extended to the stomach, lymphatic glands before the spine, raising the aorta and vicinity of the uterus; in others, again, from the liver to the spleen, or to the stomach, pancreas and omentum. In a lady whom I attended, the liver, pancreas, duodenum, and colon, had formed adhesions. The coats of the latter, surrounded with diseased glands, were enormously thickened, while its caliber was reduced to that of a writing quill; occlusion of the common duct, productive during life of intenso icterus, had also taken place. Induration of various hues, attended or not with icterus and ascites, is described by different authors. Greasy degeneration is almost peculiar to phthisis; but Rochoux mentions it apart. Tubercles, according to Cruveilhier and Carswell, are rare in the liver of adults; the latter

affirms having met with them in children, Lombard never. Unilocular or multilocular cysts, sometimes distended with bile or calculi, at the roots of the biliary ducts, must not be confounded with tubercle. Abercrombie describes tuberculous disease of the surface of the liver with incessant vomiting, exhaustion, and death. The round, watery, transparent, organized vesicles, termed acephalocysts, or hydatids, boxed up in one another, or floating, one or more, free in a cartilaginous bag, are occasionally met with. They vary in size from a pea to an orange, but some have contained pints of limpid fluid, and are then often mistaken for encysted dropsy. Gendrin describes an acephalocyst which extended to the left hypochondrium, and so compressed the right lung that a vestige only was discoverable after death; Abercrombie another, stretching below the umbilicus into the left side, so that the right lung was smaller than the kidney, the left lessened, and the heart not larger than in a child of five or six; lastly, Corvisart and Leroux mention an acephalocyst produced by the blow of a carriage-pole, which had thrust the right lung above the third rib. They may remain years without inducing any disturbance, while at others they occasion inflammation, suppuration, and death. Sometimes they burst without inflammation, or discharge their contents, prior adhesions being formed, into the adjoining viscera. Thus, these bodies, though coming from the liver, have been coughed up; at others, escaping by the colon, have been discharged by stool. Merat, in the *Dictionnaire des Sciences Médicales*, relates the case of a woman, who, after a sensation as if something were tearing, passed, for some weeks daily, three or four hydatids, each the size of an egg. Having ceased to do so, an abscess formed in the abdominal parietes, on a level with the arch of the colon, whence a number of hydatids issued. A similar instance described in a recent French journal, gave rise to a report in the quarter where the woman lived, that she laid eggs. Guattani relates the history of a man of forty, who, for nine months, bore to the right of the umbilicus a tumour which suddenly burst, discharging three hundred hydatids. A parallel case, even to the number of these vesicular bodies, is described by Meckel. Multiple or fecundated hydatids, Cruveilhier affirms more frequent in man than the inferior animals. The diagnosis is obscure, and rarely to be determined short of expulsion. When the hydatid is large, there is, perhaps, fluctuation on percussion; and Brianc̃on has alleged a peculiar vibration. If the cyst be punctured, serum will probably be discharged. Pleurisy and pneumonia, as Louis and Andral have shewn, sometimes accompany abscess of the liver; and pleurisy, Cruveilhier observes, occasionally attends the presence of hydatids. The vitality of these bodies is a debated question; they certainly enjoy an independent existence, and move faintly when placed in boiling water. There is, however, another minute vesicular creature, the cysticercus or echinococcus, from *εχῖνος*, a hedgehog, and *κοκκος*, a grain, in reference to its four suckers and crown of hooks, often lodged in a cyst or capsule, and defined by Bremser, *capite tetragono, rostello terete uncinato, collo brevissimo, corpore cylindrico longiore, vesica caudali elliptica transversa*, of whose vitality there can be no doubt. To these, rare in man, frequent in the inferior animals, the hog more especially, I shall have occasion to return. The distoma hepaticum or fluke, a flat lancet-shaped worm, about four lines long and a line broad, obtuse

at both ends, so common in sheep, is described, a rare case, by Bidloo, Pallas, Chabert, and Bucholz, as met with in the gall-bladder and hepatic ducts.

Hepatitis occurs oftener in men than women; in the East Indies than the West. Hepatic disease does not seem very common on the coast of Africa, but Savary often met with it in Egypt; and Peter Frank alleges that it is not more frequent in Italy than Germany. In the West Indies, Europeans are more stationary, and, so far, less exposed than in the former. The liver and bowels, in warm climates, hold the same relation with the surface that the lungs do in cold; hence cutaneous exhalation from any cause being checked, in many cases dysentery—in many, hepatitis. Affections of the liver, *non chronicis modo, sed inflammatoriis adeo affectibus*, according to the writer last named, are next in point of hereditary frequency to those of the lungs and brain. Ballingall found hepatitis to affect the most regular living soldiers; he unites with Annesley, Marshall, and Johnson, however, as to the evil results of dissipation and excess. The irritation ensuing in the duodenum of dram-drinkers is supposed to be often propagated along the ductus choledochus to the liver; I would, however, ascribe much to general constitutional depravation. Chapman says liver disease has become more frequent in the United States, from abuse of mercury. I witnessed fatal hepatitis with dark softening and disorganization of the liver, in a child only nine months old, from cold. Hepatitis also ensues from falls, blows, wounds, rupture. Dressel attended a boy of nine, who, in a moment of passion, had stuck a knife in his side, causing protrusion of a piece of liver three inches long, which sloughed off in five days, so that the patient was well in a fortnight. I have already adverted to those phlebotic deposits, to which, as Schönlein correctly observes, the liver is peculiarly liable: also, to the few instances in which lumbrici have penetrated the biliary ducts. Wierus, indeed, relates one in which a *Spulwurm* or lumbricus actually reached the convex surface of the liver as far as the peritoneal covering.

Morbus arcuatus, arcuatus, or regius, suffusio bilis, aurigo, icterus, jaundice, may ensue without hepatic structural change; but it is very frequently otherwise. I have been told of those who died of jaundice—it would be better to say with, for certainly, no one ever perished of jaundice alone. Calculous obstruction of the gall-ducts, also obliteration, from thickening and engorgement, entail icterus; but, as Andral and Louis observe, it may take place and persist without any appreciable diminution in their caliber. The yellow hue comes on with variable rapidity, and, spreading from surface to surface in patches, affects the upper portions of the body first. The conjunctiva, as also the little crescents at the roots of the nails, are early discoloured. Some see objects yellow; this, which has been denied, is vouched for by Good. The colour sometimes morges into green or black, which Baillie has connected with the worst prognosis; this, however, must be regulated by the nature of the concomitant lesion. Some, indeed, have been seen black, green, and yellow, in different parts of the body at the same time: here the term morbis arcuatus, or the rain-bow disease, would seem very applicable. I know not how far this affection is discoverable in blacks, their nails and conjunctivas are naturally yellower than in whites; yet the *αἵμα καλάνθον*, as I know, is capable of mantling

in their cheeks. Berthold observed jaundice, icterus demedatus, confined to one side; and Ettmuller mentions an old man, who, on being seized with apoplexy after a fit of anger, was affected simultaneously with icterus and hemiplegia on the right, even to the nose, which was yellow on one side, white on the other. Van Swieten saw a woman whose breasts and face were yellow, the rest of the body free; the milk being unaltered in taste or colour. The tongue, palate, and teeth even, are tinged, while a bitter savour is experienced in the mouth. If a blister be laid on, the serum, like that of the blood, is yellow; the urine, also, and it has been said the sweat. The stools are loose or constipated, white and clayey, or, it may be, natural. Other symptoms vary, according to the complication; but there are some, says Andral, in whom icterus begins, develops itself, and comes to a close, without any occurrence that would otherwise imply hepatic disease. Pliny, and long before him, Hippocrates, notice itching of the surface; Elliotson has seen some who felt as if they could almost tear themselves to pieces. A few are heavy and inapt, but recover with the disappearance of the disease. Icterus seldom persists more than a few weeks, but it has lasted a twelvemonth. However slight to appearance, it is always to be viewed with distrust; sudden death, sometimes preceded by coma, having been recorded by Twining, Abercrombie, Albis, Griffin, and McLeod. Pearson, it has been stated, knew a family of eleven, ten of whom were cut off by jaundice within the month. In these cases, however, it seems obvious that some more powerful cause must have been at work. There is a reddish yellow hue at birth, but icterus neonatorum may ensue some days after. Billard does not esteem it a disease; Dewees met every symptom, clayey stools excepted, the child not suffering in the least. Morgagni, Burns, and Schönlein, however, advert to its occasional severity, or, to speak more properly, of the disease of which it is the symptom; and Bruning observes *hæc aurigo intermittens et periodica, tenella et sensibilia subjecta, præ aliis invasit*. The source of recent jaundice is not always apparent; to its connexion with hepatic or cystic disease I need not here further advert. It has been known, probably from the alarm generated, to follow the bites of reptiles and venomous insects. Mental emotion may unquestionably induce it. Calling one day on a medical friend in Edinburgh, I found him icteric, which he ascribed to vexation, arising from the rejection of some of his pupils. A German writer mentions a girl who became so after recovering from the swoon which the firing of a gun behind her had occasioned; and a lady of my acquaintance experienced icterus from disgust produced by finding a snail in her food. The suppression of long-continued cutaneous eruptions, and of axillary sweat, has been known to lead to jaundice. Richter alleges its alternation with erysipelas. I have met with it towards the fatal close of many diseases which had no apparent connexion with the liver. Its association with the periodic fevers of warm climates is well known; yet I have treated patients in continued fever who were yellow as gold. The doctrine of spasm, a sort of *deus ex machina* in the hands of Hoffmann and others, is often connected with the production of icterus. Many practitioners, says Andral, unhesitatingly believe that every case of jaundice is produced by bile, which, absorbed by the liver, regains the general circulation, and is carried to every tissue. Neither fact

nor analogy demonstrates this occurrence in the numerous instances in which icterus accompanies disease of the liver, or follows a moral emotion. Were this writer to give the preference to an hypothesis, it would be that which affirms its production, when the liver, being altered in structure or function, ceases to separate the constituents of bile from the blood. Abercrombie thus explains the occasional supervention of coma, just as it ensues after suppression of urine in ischuria renalis. In ordinary cases, bile or urea is not readily detected in the blood; but each is severally discoverable in the event of icterus or ischuria. This statement, is confirmed, as regards the former, by Bufalini, in the second volume of his *Fondamenti di patologia analitica—così noi abbiamo testificata per molti analisi la esistenza degli elementi della bile nel sangue degl' itterici*. The treatment of icterus should be regulated so far as these are discoverable, by the nature of the concomitant lesions; otherwise we must abide by general indications. Aperients and the warm bath may often prove expedient. Johnson instances a jaundiced child, in whose bowels the nitro-muriatic bath induced great effusion of bile.

Symptoms of gall-stones are often slight or null; in fact, they are discovered after other diseases, where they had been productive of no prior disturbance. The pain attendant on their passage, however, is often excessive; women affirming that it surpasses the pangs of childbirth. It sometimes extends from the epigastrium to the right hypochondrium. In some it is lacerating, gnawing, boring, so that persons of unusual fortitude have been known to roll on the floor, and display all the evidence of extreme suffering. Once the calculus has reached the duodenum, comparative ease is experienced. It has then happened, that in place of going off by stool, it passes into the stomach, and is vomited up. The over-distended duct, however, may burst behind the obstacle, followed by peritonitis and death. If the concretions be small and smooth, and pass quickly, icterus does not follow; but, if attacks be frequent and prolonged, the icterus will be proportionate. In some cases, jaundice comes and goes. The stools are natural or clay-coloured, according to the occlusion of bile. Sometimes the duct is left irreparably diseased; in others, fistulous openings form externally or with the intestines. Burserius and others, mention the escape of gall-stones by the groin. The duration of a fit of gall-stone, usually short, may be hours, and even days. If the calculus, however, remain quiet, and evince no *äusserende Nisus*, as the Germans would term it, the patient may remain long exempt from suffering. Sneezing, coughing, laughing, riding, and going to stool, are all alleged causes. Calculi some inches long, and large as eggs, have been discharged. In the Hunterian museum in Glasgow, there is a gall-bladder with a thousand in it; Elliotson took between three and four hundred out of another; and similar accumulations are adverted to by De Haen, Morgagni, and Boyer. In form gall-stones are smooth; sometimes, from reciprocal pressure, angular. Their usual situations are the gall-bladder, cystic and common ducts; but I have detected bilious concretions in the hepatic duct and radicles. They consist of a substance termed cholestearine or cholesterine, which Fourcroy identified with adipocero—a mistake, if mistake it be, rectified by Chevreul, with traces of carbonate and phosphate of lime, colouring matter, and water; in a

few instances, however, of a peculiar substance named picromel, also the carbonate and phosphate of limo, with other substances. The cause of gall-stones is unknown; Haller has alleged their frequency in the imprisoned; Hoffmann asserts their prevalence in females. I have only seen the disease in that sex, and I know one or two, in whom it proved a periodic torment. Gall-stones are less common in the young: I met them in a girl of eighteen; but Heberden goes so far as to say, that they are present in every one over forty. The pulse, as this writer observes, during the fit, is calm. In suspected cases the stools may be washed. In mere hepatalgia, neuralgia of the liver, the patient can bear steady, if not slight pressure—there no fever. As to the treatment of gall-stones, Darwin recommends vomiting; he saw a patient in whom oil having induced this effect, void a number. In some cases there is spontaneous vomiting, which has to be allayed. Emetics must be used with caution; they have been alleged to rupture the distended ducts or gall-bladder. Opiates by enemata, or the mouth, may prove expedient, with gentle hand rubbing and the warm bath. Prout has seen great relief from draughts of hot water containing the carbonate of soda in solution. The bowels must be kept regular. In the intervals of attacks, horse exercise, with moderate doses of soda, taraxacum, and soap, may be resorted to.

In simple congestion of the liver, the organ is more uniformly enlarged than in case of inflammation, in which the development rarely extends to the whole gland. The viscus may thus invade the thorax so as to thrust back the lung, and perhaps extend within an inch of the axilla, inducing dulness on percussion, and absence of respiratory murmur. The hand sinks readily in the left hypochondrium, while it is resisted by a hard solid body in the right. We are to feel the belly while the patient is standing, as well as when lying and sitting. The tumefied liver, in fact, may occupy almost every abdominal point, or it may be restricted to the epigastrium, umbilicus, loins, or even the left hypochondrium. Here it will not be confounded with hypertrophied spleen, when we consider the oblique direction of the latter from above, downwards, and from left to right. The liver, however, from effusion in the right pleura or abdominal tumours, may become prominent in the right or left hypochondrium, or at the epigastrium. In a case of this kind, which occurred to Valsalva, and in which the pleuritic pain was referred to the liver, thoracic effusion had thrust this gland below the false ribs. Swelling of the stomach, spleen, hepatic peritoneum, omentum, and even of the ovaries and kidneys, has been mistaken for enlarged liver. Morgagni gives an instance wherein the liver was upraised by cancer of the mesentery. In other respects, inflammation of the base of the right lung, not to advert to diaphragmitis of the right side, has been known to simulate hepatitis, and even to induce icterus. Extension of the jecural sound enables us to trace enlargement of the viscus; in atrophy, on the other hand, the lower side of the thorax displays increased sonoreity. I have more than once been able to feel the rugged unequal surface through the abdominal parietes; and, in a case on hand, percussion with the intermedium of Piorry's ivory pleximeter, defines the presence of the gland far below the margins of the ribs. Copious bleeding, Piorry asserts, will often cause sensible diminution in the dimensions of the liver. Ballingall

remarks, that when the patient is stripped, the ribs on the right side sometimes appear more elevated than on the left; and he has been able to perceive an obvious swelling on the site of the liver. Many, he observes, displayed peculiar expertness in the diagnosis, while others, who laid claim to the *tactus eruditus*, committed great blunders. Venables detected enlarged liver, complicated with ascites, by placing the hand on the right side of the abdomen, and making the patient suddenly turn over on his belly in the same direction, when the viscus, unless bound down by adhesions, would sink through the fluid, communicating a distinct impulse. Deep-seated abscesses are not readily detected; if superficial, which may be in the inferior surface of the liver, in the hypochondrium, or even the loins, we shall have swelling and fluctuation, surrounded by engorgement. Roche, along with some honourable confreres, attended a young woman with obvious hepatitis of the convexity; and he deploras the want of sufficient boldness and precision which prevented a bistoury from being plunged into an enormous abscess immediately beneath the surface of the liver, itself adherent to the abdominal parieties. Dr. Murray, inspector of hospitals in Calcutta, has published some recent cases in which an exploring needle was employed to reach the abscess. It sometimes succeeded, and often did not. In some cases, two or more abscesses subsisted. Although the majority proved fatal, the operation appears harmless, and may perhaps answer well enough, as preparatory to the trocar.

Hepatitis, particularly in the subacute form, often comes on so insidiously, that much time may elapse before the proper treatment is thought of. When the patient's strength will permit, there can be no doubt as to the propriety of free venesection, followed or accompanied by copious leeching. In India, there was long a prejudice against this practice; yet, doubtless, its prompt and efficient employment would go far to obviate abscess and chronic disease. The practitioner, however, has to contend with a malady that returns, again and again, with destructive pertinacity. Leeches, so abundant in warm climates, should be repeatedly applied till local pain and tenderness be subdued. Cupping, an irksome procedure, is only expedient in their absence. If employed, the glasses should not be too far exhausted. I have seen acute, supervening on chronic hepatitis, subdued by leeching, aperients, and suitable regimen alone. Chisholm began with bleeding to delirium, and Ballingall fears he has often been to blame for omitting this important remedy. Practitioners should keep in mind the necessity of using every means to avert a catastrophe so fatal and disastrous as hepatic abscess, also chronic alterations, that break down the health and spirits of the sufferer. Purgatives are greatly resorted to; but the diarrhoea which frequently complicates hepatitis within the tropics, renders these remedies not indiscriminately advisable. It is common to exhibit six, eight, or ten grains of calomel over night, followed in the morning with salts and senna, or a little castor oil. Should these not suffice, injections may be superadded, till evacuations, often truly serviceable, shall be induced. Tension and stuffing in the hypochondrium are often removed, and the patient feels comparatively easy and comfortable. Acute hepatic affections, says Abercrombie, are to be combated by general and topical blood-letting, blistering, and saline purgatives; but, if there be merely local tenderness, without constitu-

tional disturbance, leeching, blistering, issues, free and repeated purging, and carefully regulated diet, will suffice. When local irritation and general febrile excitement are moderated, mercury given to gentle ptyalism, will probably be easily induced and hasten the cure. If it do not affect the mouth, however, within a certain period, it should be discontinued. Ammesley and Lind divided a drachm of calomel, two drachms of gum Arabic, and one of ipecacuanha, into one hundred and sixty pills, of which one was exhibited every three or four hours. Some, however, prefer inunction; a few both methods. Blisters, and other forms of counterirritation, if employed too early, interfere with leeching and warm fomentations. Should rigors, cold sweats, and fluttering pulso, imply the formation of matter, active treatment is at an end; the patient's strength must be upheld by gentle nourishment, and every thing done to prepare him for the struggle. In a few instances, purulent deposits would seem gradually absorbed, but on this we can never calculate. On one occasion, a gentleman, after prolonged exposure to the night air, when heated, displayed all the symptoms of exquisite hepatitis. On the fourth day, violent rigors, with chattering of the teeth, fluttering pulse, cold extremities, and decomposed features, came on. I had to administer instant stimuli, and dreaded the formation of abscess at the least. Suddenly profuse, clammy, fetid sweating ensued; and, from that moment, the patient got better. Sometimes two or more abscesses subsist together, or form successively; and it has happened that, when one was opened and doing well, another would burst into the peritoneum. The tendency of abscess is to extend outwards; but it may be deep-seated, or occur in the concave or under surface. Even when situated in the periphery, adhesions may not form, nor have we any certain criterion when they do. When abscess subsists, or points externally, the indication is to open it. Murray prefers a long flat trocar, introduced through the abdominal, not the thoracic parieties, under the cartilages of the seventh, eighth, or ninth rib. It may miss the abscess, or may not reach it. In one instance, when remote from the surface, Mr. Wilkins accomplished his purpose by introducing the long trocar employed for puncturing the bladder. Some, after dividing the integuments, thrust the trocar right through. Graves and Stokes recommend an incision down to the peritoneum, on the principle already adverted to, with regard to abscesses in the neck, plugging up the wound, and laying on a poultice. If the operation succeed, adhesions form, and matter is discharged. Three or more successful instances are on record. Begin divides the abdominal peritoneum from within outward—*en dedolant*. In a few days, adhesions take place, the membrane inflaming from contact with the air, a bistoury is thrust in, and the matter once evacuated, a pledget of lint is introduced into the wound. An American practitioner went so far as to stitch the peritoneum and liver together, then employed the trocar; the patient died, as the operator states, without abdominal effusion. Recamier, both in the case of abscess and hydatids, resorted to caustic alkali, dividing the eschar, and applying fresh caustic twice or oftener, till adhesions followed, and the parieties were eaten through. Cruveilhier observes, that the effects of the caustic are restricted, as in the operation for varix. Hippocrates, and some of the older practitioners, used the actual cautery. There is some danger, as before mentioned, of mis-

taking distended gall-bladder for abscess; and it may happen, that the latter shall be so situated as not to be reached without wounding the stomach.

As for the treatment of chronic hepatitis, some are for, others against mercury. Pushed to a very moderate extent, it has sometimes proved useful. Mr. Scott, himself labouring under the chronic disease, conceived that nitric acid might prove useful; and took, at different times, about a drachm diluted, with the singular, yet agreeable result, of rendering the mouth sore, enabling him to lie on his left side, and greatly mitigating the disease. It is necessary to pay great attention to the general health, to regulate the bowels and food, wear flannel next the surface, and avoid extremes of heat and cold. A single excess in eating or drinking, will often renew the pain and fulness. Removal to the natal air, and those agreeable watering-places with which Europe abounds, otherwise to the comparatively salubrious localities which exist over India, may, when practicable, be resorted to with advantage. Occasional leeching, and long-continued counter-irritation, are often serviceable. Some prefer blisters, others setons or issues: I have kept up irritation by means of tartar-emetic ointment, for weeks, with eventual benefit. The great thing is steady perseverance in such measures as reason and experience jointly sanction. Iodine, internally and externally, the iodides of potassium, iron, and even mercury, have been employed. Scott, Johnson, Annesley, Chisholm, and Dunlop, are fond of warm nitro-muriatic lotions, whether in form of general aspersions, or as pediluvia. I have derived marked advantage from their reiterated application over the liver. Mr. Wallace advocated chlorine lotions, which were productive of a kind of rash. Otto and Gerson speak highly of baths or douches of gaseous chlorine. The aborigines of India, I conceive, owe much of their immunity to their extraordinary temperance. An officer, labouring under intractable liver complaint, and just on the point of sailing to Europe, was required, by a sudden emergency, to enter the field. It was his fortune to be captured and consigned to prison, where, for many weeks, if not months, a little boiled rice, with water to drink, constituted his only fare. On regaining his freedom, no trace of the malady remained. Diuretics may dispose of hepatic ascites, but, unhappily, leave the liver as before. In dropsy, after hepatic or splenic engorgement supervening on remittent fevers, quinine is expedient. The liver, however, as Ayre remarks, may continue enlarged for years, till inflammation followed by effusion is excited by some accidental cause.

XIII—SPLENITIS, SPLENOPATHIA.

THE spleen occupies a much less prominent position, being, apparently, a mere diverticulum for the blood, than the liver; its diseases, therefore, in so far, are comparatively unimportant. Animals, in those cruel operations termed vivisections, have been deprived of this organ, indeed, without apparent detriment. In Lincolnshire, as Crane has shewn, people will carry about enlarged spleen, termed *ague-cake*, for twenty years. Splenic functional lesions are null or obscure, and often

clude the observation of the practical pathologist. Lienitis is rare, but purulent collections, the probable result of inflammation, are sometimes met with. The viscus, as well as its peritoneal investment, is liable. Heusinger speaks of epistaxis as one of the accompaniments of splenoperitonitis, the splenitis erysipelatosæ of Grottanelli. Peter Frank and Raimann describe pain acute and lacerating, sometimes dull, extending from the margin of the false ribs along the left arm, mamma, clavicle, and shoulder. In some cases, the protuberant viscus has been felt pressing in the direction of the stomach. Sickness, fainting, and even vomiting and purging of blood, are spoken of as accompanying this rare malady. The skin is hot and dry, sometimes yellow, with great general fever and uneasiness. The disease may go on to resolution, or end in suppuration or enlargement. The spleen, however, is oftener affected with hypertrophy, the result of malarious disease. Persons perish of different affections, in whom the spleen is found singularly altered, without any thing of the kind having been suspected during life; on the other hand, anorexia, vomiting, diarrhœa, hectic, and emaciation, evince the ravages of local disease. The ancients are in accordance with the moderns as to the infrequency of suppuration—*ἐμπυος δὲ οὐ ῥηϊδίως*, says Aretæus. It may ensue without any evidence of inflammation. Sometimes rupture of the abscess is the first indication of its presence; at others, it is retained by the thickened peritoneal investment for years. Abdominal distress, as Hunter has shewn, may be experienced, the seat of which, the sufferer is not well able to particularize. A patient of Abercrombie merely felt an ill-defined uneasiness across the epigastrium; the pulse was a little quick, with diarrhœa and emaciation towards the close. After death, the spleen, which contained several ounces of pus, was soft and easily lacerable. Macbride, indeed, mentions a person, previously healthy, who died of apparent suppression of urine. Here the spleen was destroyed, and the belly filled with pus. Andral, in his *Anatomie Pathologique*, speaks of a child of three, who, in addition to pain in the left hypochondrium, laboured under fever, and simulated meningitis. The brain and bowels were sound, but the spleen was a mere bag of pus. This writer also relates having witnessed drops of fluid pus in the blood of this viscus; in a case by Ley, the cells were filled with pus and grumous blood. Wardrop mentions a man, not to advert to soldiers from Walcheren, who had been a martyr to ague, in whom the spleen was converted into a purulent sac. I have already described the occurrence of splenic and other purulent visceral deposits after phlebitis. The presence of abscess is not easily determined: when large, we may expect fluctuation; Aretæus says the point in suppuration feels soft, while the rest is hard. In a case by Cooper, a man died after fever, pain in the left side, epigastric tension, emaciation, cutaneous discoloration, profuse sweating, and diarrhœa. Here, the spleen was adherent to the diaphragm, liver, stomach, and, moreover, filled with pus. Rupture, whether from purulent distention or malarious engorgement, is frequent, and, of course, fatal. A woman admitted into the Edinburgh Infirmary, under Dr. Duncan, expired after pain in the left hypogastrium, nausea, vomiting, and gradual sinking; a quantity of coagulated blood was discovered in the abdomen. A very similar case, in which the spleen was torn, and the belly filled with grumous clots, is

detailed by Fournier. Instances, the last of which was from a fall, are related by Thomson, Ancill, and Greene. Meissner mentions a man who had long suffered from quotidian with abdominal tension, and who, after taking a ride, fell senseless from his horse; several pounds of effused blood were discovered. External violence, and even excessive effort, as Broussais observes, may induce this catastrophe. An example is related in Froreip's *Notizen*, of a lad in whom it followed a slight blow on the side from a child; another, not to quote from Tulpinus, Sauvages, Portal, and Grottanelli, by Chisholm, in a man who, while carrying a burthen, fell on his left side on a stone. The fatal issue after rupture, whether spontaneous or otherwise, is sometimes protracted for several days. Continental writers mention intermittent fever as a supervention after a blow over the region of the spleen. Evacuation of splenic abscess through the umbilicus, with death, is related by Heide, by Hickmann with recovery; through the groin, by Blasius; into the stomach, by Cozè; the left kidney, thence passing off by the urethra with recovery, by Grottanelli; by the latter writer and Jacquinelle, into the large intestines; by Ghionna, as related in Gerson and Julius' *Magazin*, through the left hypochondrium, an opening having been made by a trocar, with recovery; by Audoard, through the diaphragm into the lungs; by Tweedie, through the diaphragm; and by Newnham, three inches through the left lung, escaping into the cellular tissue in front of the sternum, and, lastly, out by the collar bone.

Malarious softening may vary from a state in which the spleen seems filled with grumous blood, to that in which the organ is converted into a mere fluid sac, the contents of which have been variously compared to pitch, oil, and chocolate. Licutaud and Portal erred in likening this change to putrefaction; the odour observed is, probably, induced during the interval between death and examination. Gangrene, however, has been said to ensue in certain epizooties. In one of Grottanelli's cases, the spleen was more like a bag of very black porridge, *pulmenti nigerrimi*, than anything else; in Abercrombie's, there was a soft black mass; and in Blancard's, the contents resembled fluid pitch. This change has been adverted to by Fernelius, Sennertus, Hoffmann, Sauvages, Van Swieten, Littré, Cartwright, Dawson, and very many others. Cruveilhier, however, speaks of breaking down of the texture of the viscus from effused blood, by him denominated apoplexy of the spleen. The deposits are round, brownish, and of variable dimensions. Morgagni, Haller, Meckel, Assolant, and others, have shewn that hypertrophy may subsist without any other perceptible change. Portal thinks the spleen, in all cases, larger after death, from the blood retiring into the great venous trunks; but spleens of ten and even twenty pounds, extending to the back, the pelvis, and, in a case by De la Motte, in the direction of the axilla, pushing up the lung, inducing dulness and absent respiration, are recorded. Lieutaud even adverts to a woman who had borne the disease for seventeen years, and in whom the spleen attained the enormous weight of two and thirty pounds. Atrophy has been known to ensue, also thickening, cartilaginization, and ossification. Abercrombie once detected hydatids between the peritoneal surface and gland; though infrequent, they have been noticed by Pemberton, as well as different continental writers. Meckel describes tubercles in the enlarged spleen of a child of three, whose lungs

were also tuberculous; and Twining saw it converted into a substance like rotten cheese. Mayn has recorded the presence of a lumbricus, where there had been intestinal perforation.

Piorry discovered splenic enlargement in twenty-two, out of twenty-seven cases of intermittent fever. In those who died during the algid period of cholera, I found the spleen turgid with dark blood. Grotta-nelli, Hildenbrand, and others, dwell on the frequency of enlargement in the Maremma, Pontine marshes, those of Sienna, Mantua, and Pavia, not to mention Corsica, Sardinia, Holland, Gulf of Mexico, Africa, banks of the Ganges, and Batavia. Suppression of the catamenia has been alleged. The pain experienced after walking, running, or riding, on a full stomach, seems to accrue from temporary lienitic turgescence. As to the diagnosis, Piorry advises us to count the ribs as they slip under the finger, so as not to mistake the last false rib, much less the contracted abdominal muscles, for enlargement. When nothing but the soft parts are under the hand, adequate though gentle pressure will determine the boundaries. It is well, as Cruveilhier proposes in exploration of the kidneys, to place the subject on his knees and elbows, so as to relax the abdominal muscles; it is also expedient to flex the thighs on the pelvis, the patient lying on his right side. The spleen may be enlarged, and yet tucked up under the margin of the ribs, while in other cases, as from pleuritic effusion, it may descend without much, if any hypertrophy. Percussion with the pleximeter, which answers better than the finger, will detect what is below, as well as what is overlapped in the thorax. Piorry advises us, as in the case of enlarged liver, to trace the boundaries with a stick of nitrate of silver, so as to test the progressive influence of quinine. He has seen the side covered with cicatrices, and the arms with traces of bleeding, for supposed cardiac disease, when the palpitation would have been best remedied by antiperiodics. Diseased kidney may implicate the spleen, and, conversely, the spleen the kidney, when they come in contact.

The treatment of acute splenitis is regulated by general therapeutic principles, but the practitioner will rarely have to exert his skill. Chronic splenitis is hardly to be distinguished from malarious enlargement, and, therefore, escapes notice altogether. Abercrombie mentions a seaman in whom a firm tumour projecting several inches below the margin of the ribs, owing to the treatment pursued for accompanying ague, disappeared in a week. In a boy, swelling extending low as the os ilium, and to the right of the umbilicus, subsided gradually, principally under the exhibition of one grain of the sulphate of iron with two of aloes, twice a day. When splenitic tumours have lasted for years, the organ has, doubtless, undergone remediless structural change. The greater the tumefaction, however, the larger must the doses of quinine prove. When by exclusion we are able to ascertain that ascites does not ensue from hepatic, cardiac, or pulmonary disease, we should examine the spleen; and if there be enlargement, and perhaps tension, our course is clear. Piorry refers to three remarkable cases of the removal of dropsy by means of quinine; and Darwall informs us of one in which the effusion and tumour, after subsisting many months, vanished together. The former is of opinion that the ascites is caused by compression of the vena porta or one of its leading branches, also

that œdema of the legs may be induced by pressure on the ascending cava. Besides quinine, bark, and other antiperiodics, half a scruple of the tartrate of iron and the same quantity of calumba may be taken three times a day. Greek and Roman physicians, indeed, recommended water in which hot iron had been quenched; or, as Celsus has it, *aqua in qua candens ferrum subinde tinctum est, precipue lienem coerces*. Twining found the same in use among the Hindoos. The spleen-powder of Bengal, consisting of rhubarb, jalap, scammony, cream of tartar, and sulphate of iron, taken thrice a day, according to the writer last mentioned, reduces splenic enlargement in two or three weeks. Mercury, unless as a purgative, is ineligible. In the case of splenic abscess, Grottanelli recommends a simple incision; Callisen would have it valvular, and if the spleen be not adherent, to stuff lint into the wound. Ghiomma, on one occasion, drew off three pints of white, stinking pus; and on another, L'Hermite eight, by means of the trocar. Tulpius employed the actual cautery in cases of chronic hardening and enlargement. Fioraventi informs us that one Zaccarella actually removed the spleen; and the same is recorded by Ferrerius in the case of a woman who not only lived but had a child afterwards. Schultze even states the manner of operating: an incision, a finger's breadth below the costal cartilages and four inches long, suffices, he informs us, for the extraction. As to the prophylaxis, it is best to avoid the malarious locality; but, if necessitated to remain, we should employ warm clothing, good fires, and avoid night exposure. I thought these were useful on the coast of Africa; and Rigaud de l'Isle states, that the charcoal-burners of the Pontine marshes shut themselves in their warm huts when the sun goes down, and do not venture out too early in the morning.

XIV—PANCREATITIS.

INFLAMMATION of the pancreas, though additional light has of late been thrown upon the subject, is neither frequent nor easy of detection. Pancreatic disease may be supposed to ensue, when with fever, pain between the umbilicus and precordia, salivation, icterus, and vomiting, signs of hepatic, splenic, and intestinal disease are absent. It may be complicated, however; and Morgagni, in his thirtieth epistle, mentions that he has seen it without vomiting. The pancreatic outlet being often identified with that of the common gall duct, pressure on the latter may induce jaundice. *Fœminæ, ex ictero insanabili defunctæ*, says Peter Frank, *cadaver lobi pancreatis dextri scirrhum, choledochum ductum, sibi proximum, perfecte occludentem, nobis obtulit*. In one by Schmackfeffer—*De quibusdam pancreatis morbis*, a woman after excessive salivation complained of burning pain, with desire to vomit, in the epigastrium, preventing her from reclining on the back or the left side. The parotid glands swelled, and the patient sank. After death, the pancreas was found red and swollen. A similar occurrence is detailed by Laurence, in the Medico Chirurgical Transactions. Mondiere and Dufresne advert to the concomitance of affections of the salivary glands and pancreas, of which the functions are analogous;

sometimes the testicles are implicated. Harless, in his *Krankheiten des Pancreas*, and others, dwell strongly on the constant burning pain in the epigastrium: this writer records an instance in which the disease subsided after copious sweating. In one instance by Crampton, œdema of the lower extremities appeared to be induced by pressure of the swollen gland. Bright speaks of fatty stools in chronic cases; and some go so far as to ascribe certain cases of diarrhœa to a discharge from the gland itself. The celebrated De Thou died of pancreatic disease. Wedekind observed pain in the back, with inability to retain the prone position; symptoms, however, which disappeared so soon as the patient discharged a quantity of pus by vomiting and by stool. Percival, not to mention Haygarth, relates a case of this kind with purulent discharge by the bowels, but the man died. A patient of Guy Patin complained of rachialgia in fever; after death, a large abscess was discovered in the pancreas. Portal, on one occasion, mentions the presence of two pounds of pus. Bartholinus, Tulpius, Highmore, Baillie, Harless, Gaultier, and others, describe similar occurrences. In the *Ephemerides Naturæ Curiosæ*, a case is stated in which pus penetrated the diaphragm, the spine having become carious. Sometimes matter escapes into the cavity of the abdomen; at others, it forms communications with the stomach, or intestinal canal. Some two or three instances of gangrene are related by Portal and Becourt. Chronic pancreatitis, of which salivation is an alleged symptom, sometimes ensues. The diagnosis is most obscure, and the disease often not detected till after death. Scirrhus is a frequent form, though probably exaggerated, of chronic degeneration. In a well-marked case of it, which I once met, the viscus resisted the knife, adhesions connected the surrounding viscera, and there was icterus. In one by Abercrombie, a man complained of pain in the region of the stomach, extending to the back, with vomiting and painful swelling in the epigastrium. After some months, exhaustion and death ensued, when scirrhus and adhesions with the colon, duodenum, and arch of the stomach, were discovered. The disease, I am of opinion, is not always primary in the viscus, but may extend, as I have known it to do, from the stomach or omentum. Sixty instances of scirrhus pancreas are detailed by Lieutaud; but others by different authors are very numerous. Sometimes ulceration supervenes. Abercrombie and Meriadec Laennec describe encephaloma. Calculi, adverted to by De Graff and others, consisting of carbonate and phosphate of lime, probably from impediment to the discharge of the pancreatic fluid, are often met with in the ducts. Enlargement, softening, induration, atrophy, fatty conversions, cysts, probably hydatids, and melanosis, are among other alterations to which the pancreas is liable. Tubercles are described by many authors: Harless, who employs the term pancreatic phthisis, gives two cases; the subject of one of them was a woman who had been rickety and ill complexioned from infancy. Hectic, with watery diarrhœa, and discharge of a tenaceous fluid resembling spittle, suggesting an affection of the pancreas, ensued towards the close of pregnancy; the patient continuing weak, hectic, and salivated, died shortly after delivery. As for the treatment of pancreatitis, it is the same as that of other acute diseases. In chronic cases, little else than regimenal measures are available.

CLASS V.

DISEASES OF THE URINARY AND GENITAL ORGANS.

I—NEPHRITIS, NEPHRALGIA.

INFLAMMATION of the kidneys may be acute or chronic, symptomatic or idiopathic. Idiopathic nephritis is certainly not common; but I saw two cases, which there was every reason to believe were uncomplicated. Prout has met but two or three; and adverts to one well-marked instance, in which, while the urine was of a deep blood-red, both kidneys were enlarged and intensely inflamed. Rayet considers this disorder of much greater frequency than what has been supposed. This writer arranges the subject into inflammation of the cortical substance, comprising simple nephritis—nephritis from morbid poisons, arthritic nephritis, and albuminous nephritis; second, pyelitis or inflammation of the pelvis and calices, comprising simple pyelitis, gonorrhœal pyelitis, calculous and verminous pyelitis; lastly, perinephritis, or inflammation of the fibrous, adipose, and cellular envelope. He admits, however, that it is impossible to distinguish these inflammations in the acute form, from each other, in the living subject. In chronic pyelitis, indeed, the urine is often mixed with pus and mucus. Nephritis is marked by rigors, followed by quick pulse, hot surface, often vomiting, and acute lancinating, sometimes dull, gravitating pain, in one or both loins. The pain in some cases is circumscribed, while in others, it radiates towards the diaphragm and transverse colon, or in the direction of the ureters, bladder, groin, testicles in man, round ligament in women, and even down the thigh of the affected side—the *πάστις μῆτος* of Hippocrates. The testicle is sometimes painfully retracted towards the inguinal ring, but Rayet says this is oftenest met with in pyelitis. Riverius and Van Swieten place the pain between the last false ribs, and ilium close to the spine; on the left margin of the spine—*auf der linken seite des Rückgrates* Naumann affirms, from the alleged greater frequency of nephritis to the left. In one of my cases, the patient, a gentleman of sixty, groaned aloud with every motion. The urine is high-coloured and sparing; in one instance which I witnessed, it was bloody. It is evacuated twice or thrice, perhaps, in the twenty-four hours; or the patient, as Rayet observes, tormented by the continual desire, passes but a few drops at a time, and, if the catheter be introduced, little or none is obtained. In an example by Clarus, in the first volume of his *Annalen*, the sweat, and egesta from the stomach, had an unequivocal—*unverkennbar*, urinous smell, while the renal secretion was suppressed. The patient died in convulsions,

having lost many pounds of blood by epistaxis: the kidneys and ureters were inflamed. Suppression or ischuria, with coma, indeed, is oftenest met with when inflammation extends to both kidneys. In other respects, the urine, according to Rayer, frequently contains a certain amount of blood or albumen. The former is met with in traumatic nephritis when inflammation ensues shortly after injury, sometimes after nephritis from cold, exposure, or the ingestion of cantharides. I have met with it in persons who had taken large doses of turpentine or nitro, as well as in calculous nephritis. The presence of albumen in simple nephritis is considered by Rayer accidental and contingent. Uric acid and the urates abound less than in healthy urine; in some cases, the latter, as in chronic nephritis, is alkaline. In arthritic nephritis, indeed, uric acid and the urates are in excess. Pus, not to mention mucus, may be present in those rare cases in which matter finds its way into the pelvis; much oftener, however, when nephritis is combined with inflammation of the pelvis, bladder, or urethra. Nephritis may terminate in resolution, partial induration or other changes of structure, and suppuration. Turner, in the Transactions of the College of Physicians, has described gangrene; also Eustachius; and Hildenbrand, in the person of his son. The disease lasted about ten days in the cases which I witnessed. As for chronic nephritis, it is marked by local pain, particularly on pressure, and turbid alkaline urine, abounding in the phosphate of lime, phosphate of ammonia and magnesia, with a small proportion of the urates. In some cases, Rayer has seen urine become clear after scarifications and cupping; but the least error in diet, as he, and Baillie before him remark, renews pain and alkalinity. When both kidneys are affected, the constitution is apt to become impaired or destroyed, with perhaps tuberculous deposits in the lungs, or elsewhere. The term *phthisis renalis* has been applied to suppuration of the kidneys? Rayer connects this more especially with inflammation of the pelvis and calices. Matter, not to advert to the small phlebotic abscesses described by Dance, may remain in the kidney converting it into a mere sac, or it may escape, commonly along with calculi, by the ureters or some fistulous outlet—the side by Van Swieten and Peter Frank—loin by Le Dran and Desault—scrotum by Richter—groin by Thal—stomach with calculous vomiting by Riverius and Senter—duodenum by Campaignac—colon by Portal and Rayer—rectum, *ἄσχος*, by Hippocrates, Tulpius, and Cruveilhier—margin of the anus by Roche—peritoneum by Bonetus, Rayer, and Dupuytren. De Haen describes a case in which it gained admission into the left lung; while Heer, Sposer, and Rayer, relate two instances into the left lung, and one into the right, all fatal. Howship mentions conjoint recto-vesical and peritoneal fistulae. In a case by Palletta, pus and urine were evacuated during five years by the urethra; after death, the left kidney was found nearly destroyed, while purulent deposits had formed between the layers of the bladder. Immense collections are recorded by Haller and others; Portal, indeed, mentions fourteen pounds of pus in the left kidney. In other respects, after acute nephritis, the kidneys are enlarged and injected, sometimes indurated, and variously tinged. Gendrin has observed the uriniferous tubes of a livid hue, the cortical substance of a deep red; and Rayer speaks of purulent deposits in the latter, not larger than pin heads. In traumatic

phlebitis, there is effusion of coagulable lymph. Chronic nephritis is marked by enlargement, atrophy, discoloration, and other variable changes. Baillio and Wilson found both kidneys converted into a soft loose mass, resembling sponge. Nephritis is induced by wounds, blows, the passage of calculi, and other causes. I have witnessed its production from exposure to cold and moisture after abuse of the vapour bath. Wounds of various descriptions, also falls and blows, entail nephritis. Worms, or other foreign bodies, calculi more especially, are sources of symptomatic nephritis. Cerebro-spinal disease, by causing paralysis, or paraplegia, gives rise to retention and imperfect expulsion; hence distention of the calices and ureters—the pelvis of the kidney inflaming first, the cortical substance afterwards. Nephritis may ensue from extension of contiguous peritonitis of the loins or hypochondrium; also after lumbar abscess. In so far as nephritis is associated with the gouty diathesis, the tendency will likewise be hereditary.

The connexion of simple nephritis with pyelitis and perinephritis, also diseases of the prostate, urethra, uterus, cerebral and spinal affections, as well as those of the digestive, respiratory, and circulatory organs, hemorrhages, dropsies, cutaneous eruptions and fevers, is minutely investigated by Rayer. Nephritis, what from paralytic affections, as well as local structural change, is most frequent in advanced life; Rayer, however, in the first volume of his elaborate work, gives several cases of nephritis, often fatal, in children from a few days to nine years old. In our examination, the organ must be carefully felt, the patient lying on his back, or on one side, the knees drawn up, as recommended by Cruveilhier. Piorry advises percussion with the pleximeter, firmly pressed down, the interlimitations of the liver and spleen being previously marked with lunar caustic. Should abscess follow rigors and throbbing pain, fluctuation, provided the deposits be not multilocular, will help to determine the event. Pain arising from passage of a calculus—the nephralgia of some writers, the renal colic of Rayer, comes on suddenly, and may even induce delirium. This, however, with the small irregular pulse, and desire to vomit, ceases with expulsion of these foreign bodies. Piorry speaks of calculous cases in which the slightest movement induced acute suffering. Carter says that pain is sometimes experienced in the sound side; as Pemberton, however, remarks, it radiates from one part of the urinary apparatus to another; cystitis and nephritis, indeed, may be conjoined. As for nephralgia proper, adverted to by Sydenham, Hoffmann, and Sauvages, independent of foreign bodies or inflammation, it is very rare, and otherwise marked by absence of the tokens of inflammatory disease. Pain arising from the passage of gall-stones corresponds with the region of the gall-bladder, liver, or duodenum: there is often icterus. In psoriasis, it follows the course of the muscle, and is produced by extension, as well as abduction and rotation of the thigh. Nephritis may be latent, at least without pain or other local evidence of its existence, instances of which have been mistaken for pernicious intermittent. Vater mentions a man in whom, for three years, there had been torturing pain in the region of the kidneys, gravel in the urine, and frequent vomiting. Here, these viscera were sound, but the pancreas was nearly destroyed. Howship, also, describes a person who evacuated purulent urine owing to psoas abscess communicating with the

bladder. The treatment of acute nephritis consists in leeching, venesection, cupping, and stuping. Depletion, to the amount of two pounds, as Andral observes, relieves in place of weakening the patient. Traumatic nephritis, particularly when combined with peritonitis, involves very active measures; and from these, the smallness of the pulse, as Rayer remarks, must not induce us to desist. Roche advises us, in the event of double nephritis—certainly on fallacious therapeutic grounds, not to allow much drink, so as to give the kidneys little to do. The bowels must be well opened; for which purpose, I prefer castor oil. If the stomach reject this, it may be administered in the form of enemata. Nephritis, from ingestion of acrid diuretics, calls for mucilaginous diluents. Opiates, preceded by active measures, will be expedient in calculous nephritis. Blisters, as might be supposed, are not contraindicated towards the close of the inflammation. Baths are expedient in every form of the complaint, at least when the first stage is over, or when the patient is not excessively reduced. Puerperal nephritis, according to Rayer, notwithstanding exhaustion, demands active depletion. If nephritis arise from retention of urine, consequent on maladies of the urinary passages or cerebro-spinal affections, this practitioner advises frequent evacuation of the contents of the bladder with the catheter. This should also be done when nephritis is induced by stricture or disease of the prostate. If the instrument cannot be passed, let leeches be applied to the anus, followed by the warm bath for some hours. It also happens, that when the catheter is introduced as far as the obstacle, urine may flow after some hours, or perchance the instrument slips into the bladder. Here, also, the loins may be cupped. Once the urine, however, becomes turbid and alkalulent, symptomatic of renal induration, bleeding must be discontinued, the patient should be clothed in flannel, and his strength supported. Abscesses, as already stated, may discharge their contents spontaneously. When they point, they have been opened by caustic, as in the thousand and first commentary of Van Swieten. Cabrol evacuated an abscess in the loins, though pus had previously passed by the urinary passages; an immense discharge ensued in about a couple of hours, through the opening, which closed in a month. Saviard made an incision in the left lumbar region of an emaciated hectic subject, with eventual recovery. In chronic disease, the patient should live by rule, and avoid every thing calculated to weaken his constitution or excite the urinary organs. Exutorics are sometimes useful. Carter advises a bandage; Cumin, red oxide of iron or ammoniacum plaster. A gentle discutient is furnished by a mixture of soap and the muriate of ammonia. Seltzer-water and milk were favourites with Hoffmann; some recommend gum-water, or a solution of isinglass flavoured with orange-flower syrup. In other respects, infusion of the leaves of *diosma crenata*, *spiræa Africana* or buchu of the Hottentots, *pareira brava*, *uva ursi*, with the extracts of hop, *hyosciamus*, and even opium, have been resorted to with alleged advantage. The rich, as Rayer remarks, by means of these palliatives, may prolong life for years; but working men, exposed to every vicissitude, as well as liable to frequent relapses and complications, are swept off by speedy death.

Pyelitis, from *πυελος*, pelvis—a designation applied by Rayer to inflammation of the pelvis and calices of the kidneys, may be conjoined

or not with that of the cortical portion. It is sometimes acute, oftener chronic, and may implicate one or both pelvi, extend to the whole or a part of their surface, to one or several of the calices. He distinguishes it into simple, calculous, gonorrhœal, and gangrenous pyelitis. The alterations portrayed in Rayer's plates, however, are those consequent on inflammation in general. Acute sometimes supervenes on chronic inflammation, and superadds the changes induced by the one, to those which subsisted in the other. In acute pyelitis, the urine contained in the pelvis and calices is always mixed with a certain quantity of mucus or pus, and sometimes blood. The urates may abound in the form of amorphous powders in the urine, or there may be uric acid crystals, those of the ammoniaco-magnesian phosphate, lastly, albumen. The swelling of the mucous membrane is sometimes so considerable that the openings of the calices into the pelvis are narrowed, or even obliterated. In the event of ulceration with purulent accumulation in the pelvis and renal atrophy, fistulæ may ensue into the subperitoneal cellular tissue, cavity of the peritoneum, or intestines. When there is any obstacle to the course of the urine, the pelvis and calices are sometimes enormously dilated, forming communications with the liver, and even the lungs. Should calculi, as often happens, subsist, they are moulded to the form of the cavity; at other times, hydatids or strongyli are met with. Pyelitis with calculous formations in the pelvis or calices, is the most frequent and important form: I shall resume its consideration under the head of calculous disease. Pyelitis and pyelo-nephritis have been known to ensue from pressure of uterine or ovarian tumours; also, cancerous masses impeding the course of the urine. Rayer has witnessed extension of gonorrhœal inflammation to the bladder, ureters, pelvis, and infundibula; the urine being charged with mucus, partly from the urethra, partly from the bladder and renal pelvi. Sometimes the inflammation arose from exposure to cold, at others, from untimely injections. Chopart mentions a young man in whom nephritis and cystitis conjointly, were induced after taking three ounces of turpentine as a cure for gonorrhœa. Pseudo-membranous pyelitis is the result of operations for stone, also of retentions of urine induced by fungus of the bladder and enlarged prostate. Pyelo-nephritis, Rayer admits, is much more frequent than inflammation of the cortical substance, or of the pelvis and infundibula or calices alone. Indeed, I think the subdivision, to the extent to which he has carried it, and the complicated details pursued through three thick volumes, which it has led to, are calculated to stand in the way of the utility of his vast undertaking. Pyelo-nephritis may be simple, calculous, or albuminous. When it is the result of cystic, urethral, or prostatic lesions, both kidneys, though not to the same extent, are usually implicated. Baillie and Prout rather deny the occurrence of inflammation in the external membrane of the kidney. Perinephritis, so termed by Rayer, is sometimes consecutive on intense nephritis, oftener the result of urinous infiltration in the exterior cellular or adipose tissue of the kidneys, as occasioned by wounds and fistulæ. It may, however, be induced by impressions of cold and moisture, in the course of fevers, and from causes unknown, leading to serous or purulent infiltration, or extra-renal abscess. Cystitis, the vesical catarrh of many writers, is a fre-

quent precursor of pyelitis, which sometimes persists after the original affection is removed. Pyelitis may be induced by gravel or calculi in the pelvis of the kidney; these having descended, inflammation ensues in the bladder, which, in its turn, acts unfavourably on the primary affection. The same may happen owing to the passage of acephalocysts from the kidneys into the bladder. Pain, in cases of calculous nephritis, may be experienced in the bladder alone, leading to error of diagnosis. After death, the bladder is sound, and the kidney, perchance, converted into a purulent sac. Rayer pursues the connexion of pyelitis with various diseases through details into which I need not follow him.

The terms granular degeneration of the kidney, and albuminous nephritis—the first by Bright, the last by Rayer, have been given to certain changes in this viscus often connected with serous or albuminous urine, diminution in the urea and saline ingredients of this fluid, cupped, buffy blood, and anasarca. Bright divides the alterations into three, Rayer into six forms; the two first connected with the acute disease, the four last with the chronic. Both kidneys, though in different degrees, are invariably affected. In Rayer's first form, which is seldom seen, the disease being rarely fatal, the kidney, red and injected, particularly as regards the glands of Malpighi, weighs from eight to twelve ounces, in place of four. The cortical substance is the principal seat of the enlargement. In the second, the kidneys are of a mottled red on a yellow base; while the yellowish hue of the cortical, contrasts strongly with the red aspect of the tubular portion. The third no longer displays the red spots or marbled appearance of the second; the cortical substance is pale on the surface as well as on a section. The fourth and fifth forms which Martin Solon associates together correspond with the granular kidney of Bright; the viscus is covered with small erudy, yellowish elevations, about the size of a pin head. In the sixth, the milky spots or granulations are not seen on the surface, but only on a section, while the kidney, indurated and irregular, is sometimes smaller, sometimes larger than natural. Minute portions of coagulable lymph are occasionally met with. These different forms, however, hardly occur with the precision with which they are laid down in the plates and descriptions of Bright and Rayer, who, indeed, differ from each other, as well as from other observers. In the advanced stages, the exterior membrane is commonly thickened, and very adherent. At the same time, more or less effusion subsists in the cellular tissue and serous cavities. Acute albuminous nephritis, so named, ensues much oftener in scarlatina than in the other exanthemata. The renal secretion is smaller in quantity than the liquid ingesta, and feebly urinous. Patients complain of constriction and uneasiness in the loins; the pulse is quick, with more or less heat of surface. Once a change in the constitution of the urine has commenced, anasarcaous effusion with puffiness in the eyelids and face, ensues with great rapidity. The blood is cupped and buffed; in a few instances, the serum is milky. The passage of albumen into the urine diminishes the specific gravity of the blood. In this case, venesection has often the effect of restoring the equilibrium. Prout has recorded a few instances of gelatinous urine. Urea, not being eliminated by the kidneys, has been discovered by Bostock and Christison in the blood. Recovery may be rapid, or death, preceded by coma, pleuro-pneumonia, or pericarditis, may ensue.

Chronic albuminous nephritis, a term to which Prout objects, is infinitely more common than the acute disease. It may supervene on the acute form, but is oftener chronic from the first. The urine is destitute of the odour which characterizes it in health, while the specific gravity is slightly diminished. With the addition of nitric acid, or the application of heat, it becomes turbid, while milky flocculi occupying the third, the half, or three-fourths of the fluid, fall to the bottom. In a very few instances, as in one by Wells, it becomes a solid mass. The urine also, owing, as Brett has shewn, to the earthy phosphates, and apart from the presence of albumen, may become slightly turbid on the application of heat: the bichloride of mercury, likewise leads to a deposit of the lithate of mercury. Sooner or later, granular kidney is followed by dropsy, sometimes ascites, commonly anasarca. The œdematous portions usually pit; but in some places are elastic, as in the lower extremities, when local inflammatory action is set up. The disease may last months or years. Debauchery and excess, hardship and exposure, strictures and the abuse of mercury, are alleged causes. Rayer never met with albuminous urine the immediate result of mercurial preparations, although, with a view to its detection, he examined many venereal patients, gilders labouring under mercurial trembling and salivation, and has employed this mineral for years in the treatment of cutaneous and hepatic diseases. It appears, however, to have ensued in a very few instances, but the connexion is quite uncertain. Induration from effusion in the cellular tissue of the new-born, according to Cazalis, is unconnected with granular kidneys. Albuminous urine, however, is occasionally, and, as it were, accidentally met with in the course of different diseases, as typhus fever, nettlerash, measles, and small-pox. Some have conjectured that the mucous passages of the bladder and urethra were capable of secreting a certain quantity of albumen. It is obvious enough, that should blood obtain admission into the urine, the serum will furnish an albuminous deposit. On the other hand, albuminous urine is sometimes absent in scarlatinous anasarca, as well as in the advanced stages of renal disease. Rayer admits that albuminous urine is sometimes present in dropsy from cardiac disease, after intermittent fevers, and at the close of chronic diseases, in which it is not always easy to say whether the kidneys are affected or not. Chronic albuminous nephritis commonly ends in death; but there may be alternations for years before this event. Christison says the quantity of albumen is not material: but Rayer decidedly affirms that its abundance, along with the absence of urea, affords an unfavourable indication. Should albumen diminish in quantity coincident with disappearance of the anasarcaous effusion, absence of buff and cup in the blood, and the return of urea into the urine, the prognosis is favourable. Christison mentions one case of recovery, and I am able to record another. The coincidence of albuminous nephritis with other diseases, those of the urino-genital organs, heart, lungs, digestive organs, and skin, rheumatism and other inflammatory affections, signalized by different authors, is largely dwelt on by Rayer.

Hæmaturia is often associated with an oleo-albuminous, at others, with a gelatinous condition of the urine. It may be active or passive, acute or chronic. Blood may be effused on the surface of the kidneys, bearing the aspect of petechiæ, in bad fevers, malignant exanthems, scorbu-

tus—in their cortical substances, and in the infundibula, where it may accumulate, and even produce considerable distention, or be expelled with the urine. Bloody urine coagulates with heat or the addition of nitric acid; while yellow lenticular globules are seen under the microscope. Urine consisting of pure blood, says Rayer, is not common, except in case of wounds or laceration of the urethra. Blood from the kidneys, owing to its coagulation in the ureters or bladder, usually escapes in the form of clots. The coagula in idiopathic hematuria, in a lady whom I attended, induced very painful dysury till the clots were evacuated. Sometimes the coagulated portions are expelled in the form of worms, the *mictus cruentus vermiformis* of Winter; and have actually been mistaken for such, as appears to have been the case in an instance by Laurence in the Medico-chirurgical Transactions. Blood is rarely furnished by the bladder, unless in ulcer or fungus of this viscus, tuberculous or calculous cystitis. Peter Frank mentions hematuria with retraction of the right testicle and numbness of the thigh, in which the kidneys were sound; but there was unsuspected cancer of the bladder. Cooper relates its concurrence with cancer, Chopart with ulcer of the bladder, and Andral met with it in cancer of the stomach in a woman. In a fatal case of calculous obstruction of the ureters by Walter, in a girl, the swelling in both kidneys was so considerable, as to lead to the suspicion of pregnancy. Foreign bodies, more especially calculi, whether in the pelvis or infundibula, ureters, or bladder, are by much the most frequent source of bloody, as well as purulent urine. Malignant renal disease always induces it. Prout mentions its connexion, in one instance fatal, with mulberry calculus of the kidney, and simple or malignant ulceration. Indeed, as this writer observes, clots, by becoming a nucleus, may induce the formation of calculi. The connexion of hematuria with prostatic disease, of which I witnessed one fatal instance, is well known. In purpura and scorbutus, blood is discharged from all the emunctories, the urethra inclusive. Diemerbröek met it in the plague at Nimeguen; a similar occurrence has been witnessed in fevers and the febrile exanthemata. There seems in some cases, even irrespective of this, a general hemorrhagic tendency; Littré and Latour, not to mention other writers, give instances of bloody discharge, the one in a young man, the other in a girl, from all the mucous surfaces. Hematuria sometimes continues for weeks, and then, as Prout observes, ceases spontaneously; at others, as Rayer has shewn, it comes and goes. The fruit of the cactus opuntia, as well as some other substances, is capable of turning the urine red; this, any more than the slight occasional discharge in gonorrhœa, that from acrid diuretics, and tinged urine during the catamenial period, will not be confounded with ordinary mictus cruentus. Idiopathic hematuria is not common in these regions. Willis mentions a gentleman who voided, in one night, two quarts of what seemed pure blood, but which coagulated into a tremulous mass like currant jelly. The disease continued for years. An analogous occurrence is adverted to by Abernethy. Rayer describes several cases of what appeared idiopathic hematuria. The first was that of an elderly blacksmith, who was cured by low diet, baths, and leeches over the left kidney. In another, the patient, after some months, died gradually exhausted. Horst, in his *Opera Médica*, relates the case of a child who often evacuated blood without

any lumbar uneasiness. Willis mentions a boy of five who had been subject to hematuria for a couple of years. Hematuria has been known to ensue after fits of anger: a case of this kind occurred in the Bicêtre. Frank, Chopart, and Rayer, describe periodic hematuria; and Chaumeton speaks of a young soldier who passed blood every month regularly, and experienced all the inconvenience from its suppression, usually attendant on menstrual irregularity. Chopart relates an instance eventually fatal, in which it proved vicarious of the menstrual discharge; the same has been observed with regard to the hemorrhoidal, by Latour d'Orleans, and others. Periodic hematuria, as also hematuria from blows or falls on the pubic region, has likewise been recorded. Different localities are the seats of certain maladies; and, among the rest, hematuria is endemic in the Isle of France, the Isle of Bourbon, and the Brazils. Rayer has met with several cases among colonists from these countries, the first more especially. Chapotin, in his *Topographie Médicale de l'Isle de France*, states, that children of both sexes, from their earliest years, are liable to bloody urine, sometimes slight and permanent, at others irregular; commonly disappearing, but occasionally persisting after puberty. Sallesse, a native of the Isle of France, mentions in his inaugural dissertation, that three-fourths of the children in that country are attacked with this disease. Some of the subjects afterwards came to evacuate fatty albuminous urine, throwing up a creamy scum. Chylous urine, so named by Prout, in which this fluid cools into a coagulum, very like blanc-mange, has occurred to this writer, Elliotson, Abernethy, and Caffé. In this last, the patient, who had also consulted Orfila and Rayer, was from Rio de Janeiro, where the disease by Sobrini, Simoni, and others, is termed milky diabetes. Neither there nor in the Mauritius does milky urine appear to be followed by fatal consequences. Among others, the case of a native of the Isle of Bourbon, an elderly woman, who voided fatty albuminous urine, is detailed by Quevenne. Several persons labouring under endemic hematuria, on proceeding to Paris sometimes experienced the removal, at other times the continuance of their complaint. In some of the cases, parties who recovered in Europe, re-experienced the disorder in their natal region. A native of France was attacked in the Mauritius, but freed on his return. As might be supposed, some of the subjects labouring under endemic hematuria, also experienced uric acid gravel, and renal calculus. In upper Egypt, during French occupation, it occurred, according to Renault, both among the horses and their riders. In the treatment of hematuria, one of the indications in the event of blood remaining in the bladder, is, if possible, to draw it off, or, otherwise, to dilute and break down the mass by frequent tepid injections. Tonics, astringents, balsamic, and terebinthinate remedies were employed by Prout, in many cases which afterwards spontaneously subsided, without the least effect. In the Isle of France, hematuria may cease of itself; in other cases, a voyage to Europe has the effect of removing it. In Paris, bleeding, save in debilitated or broken-down individuals, acidulated drinks, rest, and the infusion of rhatany, sometimes appeared to answer. Anemic cases require preparations of iron. The only case of idiopathic hematuria which I recollect to have met with, subsided spontaneously. Elliotson cured intermittent hematuria by means of quinine. Prout derived advantage by injecting a weak

solution of alum into the rectum or bladder. In symptomatic hematuria, whether in low fevers, renal inflammation, or calculus, the complication must be looked to. In the event of uric acid formations, alcalies may be administered till the kidneys cease the deposition of uric acid crystals. Tincture of cantharides, with tonic astringent remedies, has been resorted to in milky or chylous urine, whether subsisting from the first, or supervening on ordinary hematuria.

The urinary discharge may fail from inability to evacuate it, or from absence of the secretion. Retention of urine may ensue from urethral or prostatic disease, from stone in the urethra or bladder, or, it is alleged, mere spasm. It is an occasional symptom in saturnine colic, fevers, as well as in retroversion, and antiversion of the uterus. The slight torpor preceding paralysis of the bladder, from injury of the spine or otherwise, may be marked by partial or complete retention; when the affection is further advanced, by incontinence. Ligatures, rings, also the jugum penis, as related in the ninth volume of the *Mémoires de l'Académie de Chirurgie*, may induce it. In very rare instances, hernia of the bladder, as observed by Plater, has caused it. Pascal, in his notes on Chopart, mentions spasmodic contraction from excessive self-pollution. Prolapsus of the mucous membrane of the female urethra, prolapsus, and even inversion of the bladder, have been noticed as causes. Tanchon, in the *Lancette Française* for 1830, describes strangury from a fowl bone wedged across the rectum; the nature of the case was made apparent by passing the finger into the gut. Chopart mentions a child with a serous tumour at the end of the prepuce; a urinous odour exhaled from his body, the friends pretending that he made no water. Here, as in a similar instance which I witnessed under Dupuytren, removal of the extremity of the prepuce with a bistoury rectified the impediment. Forestus, more recently Elliotson, saw retention from the paralytic influence of opiate suppositories. I witnessed a similar occurrence apparently from over doses of opium; also in hysterical and other cases, without obvious physical impediment. In females, drunkards, and others, the habit of retaining urine increases the dimensions of the viscus. Hunter knew the bladder to extend as high as the scrobiculus cordis; Peter Frank mentions an instance in which twelve pints were drawn off; and Haller knew a sot whose bladder was capable of containing twenty. Retention, if it continue too long, may lead to suppression of the renal secretion, vesical paralysis, or rupture. Excessive voluntary retention, even, as in the case of Tycho Brache, described by Gassendi, may induce disastrous results. The swollen bladder rises above the pubis, and presents a fluctuating tumour, dull on percussion, and sometimes large as a child's head. Sometimes the valves of the ureters are forced; and, in this case, the latter participate in the distention. Introduction of the catheter, or of a small bougie, which Chelius advises in the warm bath, if it can be effected, procures immediate relief. I witnessed retention in an old gentleman in whom the penis had retired beyond an extraordinary prolongation of the prepuce, so that the urethral orifice was absolutely undiscoverable. On the third day, rupture being apprehended, spontaneous diuresis ensued. Prostatic enlargement sometimes hinders vesical calculus from blocking up the outlet. In the foregoing, besides the catheter, we may have recourse to the warm bath, leeches to the

perineum, opiates; and Prout, in what he terms spasm of the neck, recommends the muriated tincture of iron. I met a case of stricture habitually slight, in which, after all these means proved inoperative, the obstacle spontaneously gave way. Incontinence of urine in the aged, from paralysis or calculous disease, is hardly remediable. I have found a small blister to the urethra, occasionally serviceable. In the young, however, particularly in the event of gravelly urine, much may be done by attention to diet and regimen, the shower bath and tonics generally; also, by avoiding fluids towards bedtime, and rousing the little patient, if requisite, an hour or two after going to sleep. Sponges, and other contrivances, also lying on some impervious tissue, will often be expedient; certainly not, however, the jugum penis. A tick stuffed with clean straw, often renewed, is preferable to a feather bed. It is my firm opinion, that, in the immense majority of instances, this disagreeable infirmity, which may subsist in all postures, is owing to the neglect of those who have the charge of children, co-operating, indeed, with the indolence and timidity incident to their tender age. This habit, it appears, sometimes runs in families; and Prout has known almost all the children, the females more especially, subject to it. Young persons rest so soundly, that, if they retire replete with moisture, it is apt to be evacuated.

Ischuria renalis occurs in very young persons, more commonly those advanced in life. In the latter, it is generally in plethoric individuals after exposure to cold and moisture. I met with two instances in gentlemen turned of seventy; one in consequence of being thrown into a pool of water from a gig; the other after a common wetting. The pulse gradually rose till it reached one hundred and forty; the tongue became white, then brown; the face flushed and vultuous. Both patients sank into a soporose condition, from which they could be roused with difficulty till very near the close. The disease continued for several days; and a few spoonful, one or more, of urine, could generally be extracted by the catheter, disproving Baillie and Halford's dictum, that death only ensues in the event of total suppression. Schenck, in his *Observationes Medicæ Rariores*, relates how a man jumped from his bed into a cold bath, followed by vomiting, delirium, abdominal pains, and complete suppression. The bladder was empty, but the kidneys and ureters were sound. Though commonly fatal, Laing mentions an instance in which a favourable subsidence ensued in nine days. In the case of a gentleman from the country, whom I recently attended, the patient, whom I had before treated for gout, was suddenly seized with stupor and unconsciousness. The secretion, which for eight and forty hours, did not amount to more than three ounces, and, moreover, threw down a copious floccular sediment on the application of heat or nitric acid, happily yielded to aperients combined with colchicum, turpentine, tincture of lytta, blisters over the kidneys, and copious draughts of wine whey. In cases such as these, the kidneys, as regards their excreting functions, are doubtless paralysed; in others, however, the suppression and consequent fatality are owing to impacted calculi. In one by Gaultier de Claubry, the subject had been liable to nephritic colic relieved by expulsion of calculi. Suppression, however, lasting nine days and a half, ensued; while the patient preserved his faculties to the last. The calices of the left kidney were occupied by four cal-

culi, while the orifice of the right ureter was exactly plugged up by one. A sergeant, according to Brown, felt himself rather unwell, and had made no water for thirty-six hours. A catheter brought away nothing, but, towards the close, half a pint or so was passed at a time. The right kidney was inflamed and ulcerated, and a uric acid calculus subsisted two inches down the ureter. In the left, which was likewise inflamed, a calculus occurred an inch below the pelvis. Teeling also has described inflammation of one kidney, with imperforate ureter and gravelly matter in the other. In a case in the seventeenth volume of Gräfe and Walthers' Journal, in which the patient died comatose, the right kidney and ureter were absent, an hydatid replacing them; while the pelvis of the left, which still contained a little urine, was closed by a calculus. Julia Fontanelle, in the *Archives Générales de Médecine*, describes complete suppression, in which no trace of the left kidney or ureter was discoverable after death; while the right, enormously enlarged, presented an almond-shaped calculus, hermetically closing the superior orifice of the urethra. This calculus, like most other discovered in the kidneys, dissolved in caustic soda, yielded with sulphuric acid a white precipitate of uric acid. In an instance by Fouquier, in which no water was passed for seventeen days, one kidney was stopped by a calculus, while the other laboured under organic disease. Obstruction from hydatids, calculi, fungoid growths, or thickening of the coats, is described by Ruysch, Fernelius, and later writers. Chopart relates an example of retention, in which the scirrhus uterus was found compressing both ureters. The *Traité des Maladies des Reins* contains many instances of suppression and coma, in connexion with calculous and other forms of nephritic disease. Simple acute nephritis, says Rayer, with cerebral symptoms, and, perhaps, impacted calculi in the pelvis, calices, or ureters, sometimes diagnosed by chemico-microscopic analysis, is almost always attended with complete suppression for some days. He refers to Forestus, Abercrombie, and Wilson, for corroborative illustrations. Oehler, Billard, and Desir, have described calculous and simple nephritis, with suppression in infancy. Willan relates three cases, one of them in a boy nine years old, with coma and suppression. In the only one which he had permission to examine, the kidneys were sound. In another, by Abercrombie, in a child of two years, the kidneys were sound; but, in one by Watson, they were inflamed and enlarged, each containing a teaspoonful of pus. Children labouring under calculous nephritis have been known to go off in convulsions. The ischuria, however, described by these writers, as well as by Jahn, Underwood, and Schönlein, must not be confounded with retention in the new-born, which a warm sponge to the pubis serves to dissipate. Schönlein has described a modification under the denomination of *Harnscharfe der Kinder*, urodialysis neonatorum, also *Harnscharfe der Greise*, in which infants and aged persons pass small quantities of acrid, high-coloured urine, with more or less fever. Independent of ordinary ischuria, there is a sort of chronic suppression, in which, putting deception aside, patients have lived weeks, months, and even years. Parr mentions an instance in which no water was passed for six, Haller, another in which the suppression extended twenty-two weeks; Berres, one in which it lasted half a year; and Richardson speaks of a lad of seventeen, who had passed no water from birth, the urinary

constituents, as in the case of birds, probably escaping by stool. Johnson tells us of a case in which, for weeks, nothing but a little blood came through the catheter. Sometimes vicarious outlets supersede the ordinary emunctory; and when the practitioner, as we find in the London Medical and Physical Journal, can see urine passed by vomiting, or through the navel, there can be little risk of deception. Donatus mentions a nun who sweated urine, as it were, by the epigastrium; and Plater, a girl, who, after suppression, emitted daily from the right ear a copious flow of serum. Hastings, as we find in the Midland Medical and Surgical Journal, met with urinous discharge from the umbilicus; and, in the case of a girl by Arnold, in the New-England Journal of Medicine and Surgery, which lasted two years, urine, preceded by local pain and tenderness, escaped alternately from the lumbar region and navel, ears, left eye, nostrils, right nipple, and by vomiting. Loss of sight, tetanic, and comatose affections, accompanied the discharge, which was of a lemon colour, and consisted of urea, the alkaline sulphates, muriates, and phosphates. In a case by Elliotson, after corrosive sublimate, urine passed by the palms of the hands and skin. Tulpius adverts to an old man who, after being operated on for stone, passed water by the anus; here however, while the right kidney was absent, a communication had formed between the bladder and rectum. Van Swieten mentions an hysterical person who vomited urine for forty days; and Sauvages, a female in whom copious fetid sweats constituted a supplementary discharge. Prout and Laycock have witnessed simulated suppression; but I have certainly seen hysterical retention and apparent suppression, in cases in which there was no reason to apprehend deception. The treatment of ischuria is empirical. Should inflammation be apprehended, bleeding may be practised. Riverius speaks of an individual who experienced the disease after swallowing cold water, and who was promptly relieved by venesection. Elliotson proposes solid cantharides; but this, and very many other remedies, have been employed without success. In calculous cases, Willis thinks copious diluents, with the bicarbonate of potash or soda, might possibly afford relief. The nature of such, however, is frequently not discoverable till after death; and once the renal functions have ceased, remedial interference too often proves of little avail.

Diabetes, from *διαβαίνω*, to pass through, is the designation when the kidneys secrete enormous quantities of urine. Dipsacus was another appellation; *ῥιψάξ* being the name of a serpent whose bite was supposed to induce intolerable thirst. The term has been applied to two forms, according to Dobson, convertible, diabetes insipidus and mellitus. Prout confines diabetes to saccharine urine, which Willis would denominate melituria. Scheu mentions a boy of five, who fell, during frost, into a brook, whereupon most copious flow of clear tasteless urine, with night and day the pitcher at his side. At sixteen, the disease persisted, with leanness and dry meagre skin, otherwise, the health was good. Limpid urine in hysteric cases is often passed in excess. The inferior animals, horses more especially, are said to be liable to affections of this kind. Saccharine urine is usually witnessed in adults broken down in health; it has been met with in children by Morton, Bardsley, Watt, M'Gregor, Willis, and Venables. There is weakness, malaise, general indisposition, loss of sexual inclination, dry harsh skin,

extreme thirst and voracity. In one of three instances which I witnessed, the individual was far gone in pulmonary disease: indeed, the greater proportion of those affected, die rather of this than of the renal affection. In a case by Rayer, § 544, in which the patient perished of phthisis, albuminous urine supervened on well-marked diabetes mellitus, in a woman of thirty. The complaint is always obstinate, for the most part fatal. Naumann relates an instance complicated with anasarca and ascites, in which it proved so in six weeks; the disease, however, may last for years. The thirst is insatiable, the *δίψος ἀνεπαρές* of Aretæus; the appetite unappeasable; and, what is remarkable, the urine exceeds the solid and fluid ingesta, a circumstance only explicable on the supposition of cutaneous or pulmonary absorption. I witnessed this in an instance in which the urine, as shewn by Bardsley, yielded a copious saccharine residuum on evaporation in the sand-bath. Peter Frank, indeed, affirms that it is from one-half to two-thirds, Fothergill from one-third to one-fourth more than the whole food. The former mentions fifty pounds of urine in twenty-four hours; and an instance occurred under Dupuytren, in which the daily evacuation equalled the third of the patient's weight. The discharge, however, is rarely so considerable. In health, indeed, people often pass more water than they drink. I knew an individual who only drank a little tea daily, yet in whom the urine was not deficient. Diabetes is much commoner in men than women: occasionally, it appears hereditary. Isenflamin, Thomas, and Gregory aver its occurrence in more than one member of the same family. The occasional causes are little known; cold, however, together with some latent predisposition, appears one of them. Thus Marsh relates a case with intense thirst, craving appetite, dry skin, and clammy tongue, coming on after exposure to cold and hardship at sea; and Zipp, in Hufeland's Journal for 1827, states its production owing to a draught of cold water, the body being heated; both with recovery. Prout has met with it in persons whose appearance he should never have suspected; thrice, also, in fat athletic individuals. The immediate source of diabetes has been vaguely referred to errors of assimilation, renal and gastric disease. For the most part, the kidneys are little changed, perhaps, larger and softer than natural, which might be an effect as readily as a cause; but as Bouillaud observes, though it might account for the increased flow of urine, would not for the sweetness. The specific gravity of diabetic urine, compared with a thousand parts of water at 60 degrees, varies, according to Henry, from 1020 to 1050; Prout, however, has met with it even higher. Of healthy urine, according to Prout and James Crauford Gregory, the specific gravity, taking water as unity, scarcely reaches 1.020. A fatty matter, erroneously alleged caseous or milky, has been met with in diabetic urine. Rayer twice found milk in the urine, but it had been added by the patients. The saccharine matter is more analogous to that of the grape than cane. On one occasion, I tried to ascertain the exact amount in a given quantity of diabetic urine, but did not succeed to my satisfaction. The daily draught from this source, however, is enormous. Subjected to heat, the produce above alluded to emits the burnt-sugar smell, the *caramel* of the French: and if yeast and water be added, undergoes vinous fermentation. M'Gregor and Bouchardat have detected sugar in the blood and saliva

of diabetic individuals. Feces allowed to dry spontaneously, were covered with saccharine crystals. Independent of the yeast test, the salts of urine may be mostly thrown down by the acetate of lead, and this, in its turn, by means of sulphuretted hydrogen; after which, the fluid being filtered and evaporated, yields sugar in crystals. Mr. M'Gregor thus obtained a small loaf. Dilute sulphuric acid turns urine or serum evaporated in a porcelain dish, black; a drop or two of each will suffice. The black spot, if heated, becomes orange. Uric acid, if not urea, is deficient in diabetic urine. Henry, indeed, by distilling urine above 212 degrees, caused it to evolve carbonate of ammonia. Kane dissolved in boiling alcohol the extract obtained by digesting the dry extract of urine in distilled water, which was again reduced to a syrupy consistence, and treated with equal parts of nitric acid and water. Placed in a freezing mixture, crystals of the nitrate of urea, afterwards purified by washing in ice-cold water, and dried between folds of bibulous paper, were obtained. M'Gregor, however, got rid of the sugar by inducing fermentation with yeast, evaporating the fluid, and heating the residue with hot alcohol which afterwards yielded impure crystalline urea. He, in this way, determined that different patients were passing, each daily, from five hundred to a thousand grains of urea. The treatment of diabetes is almost wholly empirical: bleeding, opium, emetics, magnesia, and sweating, are the remedies oftenest trusted to. Many of these, however, are quite unsuitable to subjects perhaps far advanced in tuberculous disease. There are few patients—I have seen none, who will bear bleeding, purging, or emetics. As for the unmixed animal diet recommended by Rollo and others, it could only answer in an Esquimaux, and, moreover, is founded on an erroneous indication. Kennedy, preceded by Bursarius, Watt, and others, treated a case with bleeding, leeches over the loins, carbonate of ammonia and lime water internally, so successfully, that the man married and had children. Sharkey has tried the phosphate of soda, Willis and Zipp, magnesia in half-drachm doses, three times a day, in mint-water, with partial success. Alum, as well as bile, urea, and other absurd remedies, have been resorted to. The vapour-bath, with tolerably frequent doses of opium, the latter especially, has the suffrages of Watson, Tommasini, Heniecken, and Elliotson in its favour; the bowels, as Baillie recommends, may be regulated by infusion of rhubarb and calumba, with tincture of opium. The tincture of cantharides was tried by Wrisberg and Morgagni. I certainly have derived more advantage from vapour-baths, flannel next the surface, occasional doses of opium or Dover's powder, with a liberal mixed regimen, avoiding, of course, all saccharine ingredients, than any other procedure. I treated a lady who laboured under diabetes insipidus, by means of flannel, Dover's powder, opium, and the bath, successfully. Diabetes mellitus, however, though it may be palliated, is too generally incurable. Prout, in a few cases, has known the urine for a time to become natural, while in others, the symptoms were subdued. In thirty by Bardsley, eight are said to have recovered, while sixteen were known to die.

The kidneys are liable to other morbid conditions, into the consideration of which, Rayer has largely entered. Anemia, as well as hypertrophy, united with various discolorations, may subsist in one or both

kidneys, and prove partial or general, complete or incomplete. In diabetic persons, as we see by Rayer's thirty-seventh plate, the cortical substance is generally hypertrophied. The kidneys of the new-born have likewise been seen enlarged. Atrophy, also, may be congenital or otherwise, and occur under a great variety of circumstances. It is often seen in connexion with renal calculi. Owing to calculous or hydatigeniform obstruction and thickening of the mucous lining, liquid primitively urinous, subsequently serous, may accumulate in the pelvis and calices. In hydronephrosis, the kidney is sometimes so distended as to be reduced, Baillie observes, to a mere sac; and in a few instances, as one by Meckel, the belly is swollen so as to resemble encysted dropsy, for which, indeed, it has been mistaken. Sömmering found the left kidney of a new-born child a mere capsule containing fluid. A renal tumour, weighing thirty-five pounds, is described in an old French periodical. Double hydronephrosis is only recognized when the tumours are large enough to be appreciable by percussion in the loins and hypochondrium, or by palpation, when they exceed the free margins of the false ribs. Rayer detected one tumour, the other being hid in the right hypochondrium. What renders the danger imminent or null, a kidney being diseased, is the circumstance of the remaining one becoming implicated or otherwise. In a case by König, one kidney was affected for three and twenty years; in another by Rayer, fifty years elapsed before a calculus in the second ureter entailed speedy death. An example of enormous hydronephritic distention in a girl is recorded in the Philosophical Transactions. König advises the trocar, but so long as the tumour is not painful, Rayer would let it alone. Should inflammation of the parietics, indeed, not to be controlled, ensue, he would give issue to the contained sero-purulent fluid. Howship evacuated ten pints of sanguinolent liquid; two years after, the tumour having filled afresh, he repeated the operation with the lancet in place of the trocar, but the contents escaping into the abdominal cavity, the patient perished. Simple nephritic cysts also ensue, in the cortical substance more particularly, sometimes in the cellular tissue; and by inducing atrophy or becoming affected with inflammation, may entail death. Numerous instances, some of them congenital, others in which both kidneys were affected, are recorded by authors. In one, Rayer found a cyst containing cholesterine, which was also deposited in the aorta, near the iliac divisions. Hydatids in the brute are commonly solitary, in the human subject social—*acephalocystis socialis vel prolifera*. Those inside the parent cyst, as in Rayer's twenty-eighth plate, sometimes resemble grape-seeds. They may induce a development so considerable, as to be evident on palpation and percussion. Hydatids remain for a certain time passive, then contract adhesions with the parietics of the pelvis, and open into it; and, should one or more escape into the ureter, may occasion symptoms of retention and ischuria. In Brun's Thesis, mention is made of a man with a tumour in the left iliac fossa, which notably decreased on the evacuation of hydatids, some of them torn, others large as a nut, by stool. A case is related in a French periodical, in which a man passed hydatids both by the urethra and rectum. Schmidt, in the forty-sixth volume of *Froriep's Notizen*, mentions the evacuation along with the urine, preceded by strangury, of *acephalocysts*, large as a bean. Weitenkapf details a similar discharge of cysti-

cerei: in other respects, renal hydatids are recorded by De Graff, Bonetus, Eustachius, Morgagni, Meekel, Russel, Lettsom, Baillie, Chopart, Rayer, Lacméc, Brachet, and Parmentier. Aneurism has been observed in the renal arteries. Rayer has given several plates illustrative of renal phlebitis. It is sometimes, as in a case by Danee, coincident with nephritis; at others, as described by Rayer, Lee, and Dugès, concurrent with inflammation of the ovarian veins after child-birth. The kidneys are liable to softening, hardening, as well as conversion into fatty, erectile, and other normal or homologous tissues. Among the heterologous, are tubercles, similar, according to Baillie, to those in the lungs. They are met with, according to Carswell, in the infundibula, pelvis, and ureters; Amussat records their presence in the kidneys of a phthisical girl. It is curious, as Meckel and Rayer observe, that they may occur in one kidney and not in the other. In some cases, says the latter, they are few and minute; in others, the kidney, calices, pelvis, ureter, and, in a few instances, the external membranes, are equally implicated. Tubercles are very rarely seen in aged persons. In a case of tuberculization of the right kidney, described by Bayle, the man, prior to his death, laboured under glairy, bloody urine. Howship mentions a woman of twenty-six, who complained of pain in the bladder, which was strewn with small ulcerations; the right kidney and ureters were tuberculous. What König, Wilson, and Baillie have termed serofulous abscess, Rayer looks on as simple pyelitis. In several of Rayer's cases, there was coincident tuberculization in the lungs, larynx, and other organs. Cancer is commonest in advanced life; encephaloma, as observed by Wardrop, Langstaff, Gintreae, Chopart, and many others, is the most frequent form; fungus hematomas and scirrhus are comparatively rare. The cancerous masses are somewhat irregular, leaving the kidneys without a trace of their primitive organization. Cancerous degeneration of the pelvis and calices is rare. When the tumour is small, it is not tangible either on touch or pressure; subsequently it is felt hard and solid, while dull, deep-seated, otherwise, acute lancinating pain is experienced in the lumbar region. In many cases, a certain amount of blood, sometimes clotted, vermicular, or resembling washings of flesh, during the latter periods of a fetid odour, is seen in the urine. The skin assumes a yellow or straw colour, while emaciation, anasarca, and, finally, death ensue. In some, the bladder, ureter, pelvis, and liver, after death, were found simultaneously affected. In Rayer's eighth case, not merely the kidneys, but the lungs, heart, liver, and mesenteric glands, were alike implicated. In another, the kidneys, liver, and lungs, were similarly engaged. An example occurred in 1831, under Lermier, in which encephaloid masses occurred in the vena cava and renal veins, lungs, heart, and mesenteric glands. Melanosis and colloid or gluey matter, are rare: Fawcington, as well as Cullen and Carswell, have recorded examples of the former. Worms, the *strongylus gigas* or gigantic strongylus, so named, from five inches to three feet in length; also two pretended new worms, *spiroptera hominis* and *dactylius aculeatus*, are met with, much oftener, however, in brutes than man. Elliotson states that Dr. Davis shewed him a number of living worms, doubtless ascarides, though termed strongyli, in a phial, discharged from the bladder of a female. Ruysch and Blasius met worms an ell long in the human

kidney. Albrecht mentions a soldier who, for seven years, had great difficulty in passing water, till a worm, three finger lengths from end to end, and large as a quill, came away. A singular case is related by Moublet, in the person of a little boy, who, after prolonged suffering, passed two worms, five inches long and thick as a quill, through an opening in the loins, the result of an operation for renal abscess, and two by the urethra. Lapyre detected six worms, three from the pelvis of the kidney, and three from the vicinity, two to seven inches long, in a woman who died of renal abscess with a fistulous opening, following an operation. As for the spiroptera, it quite resembles the strongylus, which, after all, may turn out to be a lumbricus, no competent helminthologist having seen it. The dactylius which Mr. Curling witnessed in the urine of a little girl, appears analogous to the trichuris, or, at least, the ascaris, which the same patient passed by stool. In some instances, as one by Baillie, lumbrici have escaped by fistulous communications from the rectum into the bladder; and as such occasionally subsist with the kidney, a similar occurrence is possible with regard to it. Law, of Penrith, mentions a girl who evacuated fragments of teniæ with her urine; and a woman, as related in Gerson and Julius' *Magazin*, passed living fragments of the same worm, along with bloody urine, for years. In the twenty-first number of the *Medicinische Zeitung* for 1834, there is an account by Wolf, of the larvæ of flies, *lebender Fliegenlarven*, from the bladder of a man of thirty-three. They were not only alive when discharged, but remained so, the urinal being placed in a heated apartment, for six days. Three kidneys have been seen, the third in the middle; one only, and it has been alleged, none. Sometimes the kidneys are united and placed horse-shoe fashion, on the top of the vertebral column. The kidneys have been discovered, one or both, in the pelvis; they are occasionally displaced by tumours and visceral swellings. Mobility of the kidneys, a curious affection, in which they may be pushed backward or upward, recently dwelt on by Rayer, has been sometimes mistaken for nervous pains, sciatica, and hypochondriasis. In one instance, a tumour formed by the right kidney, which had caused much distress, could be felt in the hypochondrium of the same side. In a case by Aberle, a tumour to the right of the umbilicus, which proved the source of considerable diagnostic confusion, was found, after the patient's death from fever, to be the right kidney. In another by Girard, œdema of the right leg was caused by a moveable kidney. Rayer mentions two physicians who were alarmed, one of them for a time leaving off his profession, on finding that they laboured under tumours which they had referred to a very different source.

CYSTITIS, CALCULI.

Acute cystitis is rare, as chronic cystitis is common, and may be confined to the mucous, or extend to the muscular and peritoneal coats. The boundaries between acute and chronic inflammation, as Brodie observes, are not well defined; in other respects, inflammation may be subacute or chronic from the first, while acute inflammation may super-

venie ou chronic. Cystitis is almost always secondary, as, for example, on gonorrhœa, and may be associated with prostatic, renal, and calculous affections. Retention of urine and prostatic disease have been mistaken for cystitis; while the latter, according to Coulson, has been treated as stone in the bladder. Acute cystitis is marked by fever, quick pulse, furred tongue, great restlessness, tenesmus, and horrible strangury. Few conditions, as Begin remarks, are more distressing; the patient is devoured by thirst, a prey to ceaseless agitation, tormented by terrible pains in the region of the bladder, which becomes hot, swollen, and tender. A burning sensation, which extends in the direction of the urethra, as well as upwards along the ureters, is experienced at the neck of the bladder. The contents, notwithstanding incessant strangury, often accumulate and form a sensible projection above the pubis. Should the patient succeed in passing a few drops, it only becomes the signal of fresh suffering. In muscular inflammation, pain is principally experienced when the bladder is empty—in muco-cystitis when full; hence, in the latter, the desire to make water is extreme, with symptoms resembling spasm or cramp. Bloody micturition is most common in calculous complications; but, otherwise, the urine is of a brownish-red colour, with lymph or mucus, which must not be mistaken for portions of the lining membrane, floating through it. Indeed, the mucous coat is sometimes destroyed, and comes away in fragments, with purulent bloody urine, hectic fever, prostration, and death. Sometimes inflammation extends to all the coats, with proportionate aggravation of the symptoms. The posterior walls, according to some, are oftenest implicated. It is not so difficult, perhaps, to pass a catheter down the urethra, but when it comes to the neck the suffering is frightful. Acute cystitis may arrive at its height in three or four days, and decline in ten or twelve; whereas the chronic disease may last months or years. In the event of resolution, the pain grows gradually less, the general uneasiness diminishes, the foul urinous sweat disappears, and the urine is freely passed with a copious sediment. In some instances, suppuration preceded by rigors takes place; in a few others, the distended bladder bursts, with or without a sphacelous point. When ulceration ensues, the muscular fibres are denuded as with a knife. Abscesses are deposited between the mucous and muscular, or the muscular and peritoneal coats; deposits, also, take place between false membranes. In a case by Moreau, pus passed along the lower pelvis and shewed itself at the anus. Ferrus mentions a political character who perished in the prime of life. Pus was discharged from the rectum, which was adherent to the bladder, while urinous infiltration ensued in the perineum. Fistulous communications between the bladder and rectum are adverted to by Friedlander. Allinus gives the case of a nobleman who expelled his water, with great pain, from the rectum in place of the natural passages. Nespagli, in the thirtieth volume of *Froriep's Notizen*, saw the upper portion of the bladder, in a female, supplied by adhesions with the large intestine. I have met with some painful instances in the Hôtel Dieu and elsewhere, of fistulous communications between bladder and vagina, the result of instrumental labours. Peter Frank mentions effusion through a large opening into the abdominal cavity, the bladder being otherwise adherent to a scirrhus pancreas. The scrotum, as mentioned in Richter's *Specielle*

Therapie, after urinous infiltration, has been known to slough away, leaving the testicles and spermatic cords bare, of which I witnessed an instance in the Hôpital St. Louis in Paris. Gangrene may result from acute cystitis, from pressure of a catheter against the walls, or excessive retention. One of the most striking features of chronic inflammation, particularly in elderly men, is the discharge of a thick glutinous stringy mucus, mixed with, or, in a measure, replacing the urine. Rayet and Schenck record cases in which the latter became a tremulous mass. The mucus, as Brodie remarks, is alkaline in character; but, if small in amount, the urine, Prout observes, may be acid. This last writer states that uric acid and the urate of ammonia may be precipitated in the form of a gelatinous hydrate, at first sight closely resembling mucus, and, without the microscope, perhaps indistinguishable. Lallemand considers the frequent efforts to pass urine, by which the bladder is incompletely emptied, as among the most urgent symptoms; hence hypertrophy, with diminution, of the muscular coat, which Velpeau, not to mention Morgagni, Peter Frank, and Portal, has thrice seen an inch thick. Prostatic enlargement and urethral narrowing, with renal disease, are frequent concomitants. It was thus Burserius perished, a vast collection of matter subsisting in the bladder and right kidney. The thickened bladder has been felt through the parietics; and being mistaken for stone, has led, according to Sömmerring, to the performance of lithotomy. Some writers would distinguish between chronic cystitis and catarrh of the bladder; but, as Dubouchet observes, the difference is only in name. Coulson objects to the term catarrh, inasmuch as the mucous coat, he affirms, may be destroyed without mucus being discoverable in the urine. Civialo states that when atrophy with dilatation ensues, mucus is rarely produced. Broussais adverts to the alternation of rheumatism, as others have done with regard to gout and cystitis. In old persons, catarrhus vesicæ is apt to engraft itself on the constitution and entail frightful marasmus; pyelitis, particularly in the case of calculous disease, is a frequent accompaniment. Age itself, not to mention calculous urethral disease and excess, is an exciting cause. Dubois has remarked that persons labouring under chronic cystitis, without dilatation and attenuation of the coats, are the best subjects for operating on, acute inflammation being less likely to ensue. Falls, wounds, blows, protracted labours, acrid diuretics, and the extension or metastasis of gonorrhœal inflammation, are all reputed causes. Traumatic cystitis is most likely when the trigon or portion covered with peritoneum, has been implicated. The state of the viscus, whether full or empty, as Eisner, in Henke's *Zeitschrift* observes, is of importance. If full, blood and urine escape into the belly, but if empty, may pass by the wound or natural passages. A case is recorded in the *Lancet*, in which a marble shot into a boy's bladder was afterwards extracted by the operation for lithotomy. Gravelin, in Horn's *Archives*, tells of a man who came down on a pitch-fork; and Odone, in Schmidt's *Jahrbuch*, of a girl who, falling from a tree, was pierced by a vine-stalk, a gush of bloody urine following the extraction of the fragment, which she accomplished herself. Waltz, Remer, and Hall, relate recovery from gun-shot wounds; Cloquet and Dupuytren, rupture from external violence, as in drunkards who have been trampled on in frays, with effusion and fatal peri-

tonitis. Charles Bell mentions this occurrence in a person on whom a wall had fallen; and Shaw, in another who had stumbled, while in liquor, on a post. Prostatic inflammation, oftener of the mucous follicles and cellular tissue than of the gland itself, is an occasional concomitant of cystitis. Here there are pain and soreness extending from the neck of the bladder in the direction of the perineum and urethra, with complete or partial retention. When abscess forms, the contents, if not artificially evacuated, may find their way through the fascia, cellular membrane, muscles, and integuments of the perineum. Prostatitis, apart from gonorrhœa, with abscess at the neck of the bladder, and disorganization of the kidneys, has been met with by Prout and Brodie. Verdier, in his monograph *sur les phlegmasies de la prostate*, mentions several instances of prostatic abscess. In one, the contents escaped into the rectum and urethra; and the patient, though he laboured under four fistulæ, recovered. In another, the gonorrhœa returned after prostatitis had set in; but the latter did not the less persist. In prostatic hypertrophy, the patient cannot empty the rectum without pain, his water passes imperfectly away, and the catheter, except when the moveable middle lobe is affected, is passed with difficulty, if at all. Mercier ascribes retention to prostatic enlargement in the early stage; and incontinence to the next, the sphincter being paralyzed. I once met a curious affection of the bladder in a gentleman, who, at first, could pass water freely enough; painful spasms, as he phrased it, then came on, the urine passing guttatim or by stillieidium. The rectum being emptied, however, and a gentle opiate enema, perhaps, administered, the contents of the bladder would be evacuated at last. He had fallen on the urethra when a boy; but Mr. Carmichael, who, at my request, was good enough to examine him, detected neither stricture nor prostatic enlargement. Naumann adverts to *Blasenkrampf*, which is further described by Schmid. The bladder and dependencies are also liable to malignant disease. Acute cystitis demands active general and topical depletion, aperients, diluents, fomentations, and the bath. The introduction of the catheter, even when the bladder is full, is attended with so much suffering as to be rarely expedient; and when the inflammation abates is seldom called for. Some urge the immediate employment of calomel and opium; others, with whom I would side, not till inflammation be on the wane. Colchicum is recommended by Guthrie in gouty cases. In chronic cystitis, the regimen must be regulated by the requirements of the constitution, and the nature of the complications. The bowels will demand attention; but calomel, whether as an alterative or sialogogue, must be unthought of. A few leeches are sometimes admissible; stimuli, unless in the event of debility, are otherwise. Passivo exercise, when it can be borne, is best; and, in the intervals, the patient, as Brodie advises, should restrict himself to the horizontal posture. A hair mattress is preferable to feathers. Soda, in some aromatic mixture, may aid digestion; but, seeing the tendency to phosphatic deposition, it must be given with reserve. Cubebs, copaiva, and turpentine, are sometimes useful, when the stomach does not revolt. To opiates we shall too often find it necessary to have recourse; but their valuable therapeutic agency must not be abused. Brodie thinks ten or twelve ounces of the decoction of the root of the *parcira brava*, daily, diminishes theropy mucus, and

lessens irritability. He has been disappointed in the *uva ursi*. The buchu, in decoction, has sometimes proved serviceable; but these remedies, with iodine, and many others, too often fail to alleviate this very disheartening affection. For the treatment of concomitant stricture, I must refer to writers on surgery. In the event of prostatic abscess, Brodie thrusts in the lancet to its shoulders. Lallemand, however, prefers a bistoury introduced into the prostate, through the rectum. Should abscess communicate with the neck of the bladder, a catheter may be occasionally passed; in case of urethral stricture, Verdier prefers the armed bougie. The same writer finds twenty or thirty grains of cubebæ thrice a day useful in fistulous cases. Lallemand says, that by sounding slowly and methodically, paracentesis over the pubis, in case of enlarged prostate, is never necessary; and Astley Cooper in his lectures affirms, that he never found this operation expedient in public or private practice.

After death, the muscular coat of the bladder has been found excessively thickened, so that the cavity only contained a few drachms of liquid. Irregular projection of the muscular fibres sometimes causes the intervening mucous membrane to assume a pouched or sacculated aspect. Pouches, as mentioned by Guthrie in a case in which there were five, sometimes communicate to the catheter, short of the jar, a shock like that induced by stone in the bladder. False membranes, free or adherent, are occasionally discovered. Hypertrophy of the mucous coat and varicose veins have in some instances been observed. In atrophy, the tissues are thin and colourless. Fungi, or fungoid ulcers, sometimes present themselves at the neck or base of the bladder, inducing bloody sanious urine during life. Cancer, both hard and soft, has been adverted to by Morgagni, Baillie, and Dupuytren; hydatids, whether in the bladder or between its coats, by Tyson. Between the rectum and bladder they have given rise to retention. Various extraneous substances, as hairs, tooth-picks, seeds, pins, of which Chopart gives a number of singular instances, sometimes find their way from the intestinal canal, or by wounds; much oftener, however, by the canal of the urethra. Of all foreign bodies, so to speak, calculi, whether originating in the bladder, or descending from the kidneys, are the most frequent and important. Calculous matter, however, may subsist in a pultaceous mass, or in the form of sand or gravel; it may be situated in the bladders, kidneys, ureters, urethra; the prostate gland also is liable. Uric or lithic acid, discovered by Scheele, in part or whole, is by much the most common ingredient. We have red gravel and white, the former consisting of uric acid and its compounds, the latter of the triple phosphate of ammonia and magnesia. In one case, the urine is acid, in the other alkaline. The super-phosphate of ammonia, which, according to Prout, exists, along with the lithate of ammonia, in healthy urine, has, however, the property of reddening litmus paper. Those ingredients subsist dissolved or suspended in the urine, as well as in various deposits. Healthy urine, short of decomposition, does not afford much sediment; according to Berzelius, it furnishes a little mucus and uric acid. It is largely impregnated with the latter, or its salts, which are deposited in an amorphous powder, or, if the precipitation be slow, minute rhomboidal crystals, quadrilateral tables or prisms visible under the microscope. These appearances are depicted in

Rayer's plates, and reproduced by Prout. Donné says the acid deposit is never amorphous, an opinion combated by Quévenne. The former, however, agrees with Prout, that the majority, if not the whole of the deposits, consist of the urate of ammonia. This salt is more soluble than uric acid, with which it is doubtless often mixed, and evinces an acid reaction evident with litmus or tumeric. The urates, if not uric acid itself, according to Duvernoy, are rendered more soluble by the odoriferous and colouring matter of the urine. In partial opposition to this, however, Prout observes that the white lithate of ammonia, as voided by serpents and birds, is nearly, if not quite as soluble as the lithate of ammonia in human urine. According to Berzelius, a thousand parts of healthy urine contain one of uric acid. Prout makes the latter less soluble than Henry, a discrepancy which Thomson explains by the state of aggregation or otherwise, in which the acid is presented to the fluid. The yellow or reddish colour which deposits of uric acid or urate of ammonia display, is owing to animal colouring matters; as for the pink tint, Prout ascribes it to purpurate of ammonia or soda, Rayer to an acid termed rosacic, discovered by Vauquelin. As for pure uric acid, it is white. The amorphous urate of ammonia is distinguished from the amorphous powder formed by the phosphate of lime, inasmuch as the former, when treated with dilute nitric acid, throws down a precipitate of crystallized uric acid, whereas the latter is dissolved. The urate of soda is sometimes found alone; Wetzler affirms its constant presence, in a very few instances the urates of potash and lime. Precipitation of uric acid or the urates, which, if present, may always be ensured by the addition of nitric acid, is by some ascribed to their excess, by others to lowering of the temperature, or the presence of some other free acid, as the phosphoric or muriatic. Uric acid, commonly united with ammonia, according to Prout, the purpurate of ammonia, constitutes the red or lateritious sediment found in fevers, acute rheumatism, pneumonia, gout, and other inflammatory diseases. I have met with it to a large extent in phthisis; in which, along with other chronic affections, Prout has pointed out the pink deposits. If acid urine be kept for several days after it is voided, blackish globules, formed of the urate of ammonia, become visible. Lithic acid calculus may occur crystallized and nearly pure, compact, of a dark reddish hue, commonly oblong, rounded, sometimes flattened, and varying in weight from a few grains to as many ounces. It disappears under the blow-pipe, or with heat; perhaps leaving a little alkaline residuum. It also dissolves in caustic potash, from which an acid precipitates it in a white powder; likewise in nitric acid, which affords a pink residuum, convertible into purple on the addition of caustic ammonia. The urate of ammonia, which, like the last, red and laminated, is small, and Prout observes, rarely met with after puberty. It is more soluble in water than the lithic acid calculus, and yields an ammoniacal odour when heated with caustic potash. Calculi may remain long enough in the pelvis of the kidneys to attain certain dimensions. Sometimes they are moulded into a coralline aspect. Pisiform lithic concretions, as Prout terms them, varying in size from a pin's head, to that of a pea or marble, in surface smooth, perhaps with facets from attrition, in structure lamellar and crystallized, are more frequently met with. Next in importance, if not in frequency, is

the triple phosphate of ammonia and magnesia, the leading ingredient in white gravel and alkaline urine. Like uric acid deposits, with which it alternates or even combines, it may be crystallized or amorphous; the latter, however, much more frequently than the former. The term alkaline urine, pathologically speaking, is only applied when it proves so at the moment of emission, and not as modified by foreign admixture or atmospheric influences. The phosphate of lime, as well as the ammoniaco-magnesian phosphate, is a frequent ingredient in white gravel. Alkaline deposits, received on a filter, have a gelatinous, afterwards converted into an earthy aspect on drying. If they consist exclusively, which Rayer says is very uncommon, of the ammoniaco-magnesian phosphate, this will be recognizable under the microscope, by its regular crystalline aspect in pyramids, bordering on the rectangular prism. Deposits composed of the phosphate of lime are amorphous, like the phosphate of magnesia, soluble in dilute nitric acid; but, on the addition of ammonia, furnish an amorphous powder, in place of regular crystals of the ammoniaco-magnesian phosphate. If the urates be present, the phosphates are dissolved, and uric acid crystals visible under the microscope, precipitated on the addition of dilute nitric acid. Phosphate of ammonia and magnesia, the acid being in excess, subsists in healthy urine, and is abundantly soluble; but if either of these bases, from any cause, superabound, neutral salts, or salts with excess of base, are precipitated. Crystals of the phosphate of ammonia and magnesia may exist at the moment of emission; or, a very material distinction, they may form afterwards. They may also be present at one period of the day, and not at another. In fact, in the healthiest urine, as well as that which is acid or neuter, urea is decomposed, the carbonate of ammonia, and subsequently, the phosphate of ammonia and magnesia being formed. When ammonia is purposely added, this salt, to which Berzelius applies the epithet bibasic, crystallizes, as Vigla has shewn, so as to resemble a pinnated leaf, or that of the fern. The phosphate of lime is an occasional, though rare ingredient in white gravel; Barruel only met with it once during chronic inflammation of the bladder. The alkalinity of the urine is readily rendered apparent by its restoring the blue colour of turnsol, previously faintly reddened by an acid. Calculi of the ammoniaco-magnesian phosphate, or phosphate of lime, are much less frequently met with than those consisting of both. The mixed phosphates, from yielding readily to the blow-pipe, have had the epithet fusible applied by Wollaston. The phosphate of lime, or bone-earth calculus, is smooth and brown; the triple phosphate, uneven, soft, and white; while calculus composed of the mixed phosphates, readily soluble in dilute muriatic acid, and giving off ammonia when heated, is light coloured, friable, not unlike chalk. Renal calculi are seldom phosphatic. Prout speaks of the oxalate of lime as an occasional, though very rare, dark brown or greenish deposit. Magendie found the oxalate of lime gravel in one addicted to sorrel soup. Brett and Bird, in a paper in the Medical Gazette, mention having often detected it in deposits consisting mainly of the urates; the former thinks that it may be confounded with the urate of lime. Brett, in these cases, treats the sediment with boiling water; the portion remaining undissolved, after being incinerated, gives a white ash or residue, consisting of quicklime, and characteristic of the oxalate,

soluble in muriatic acid. Calculi composed of the oxalate of lime—*Sauerkleesäure Harnstein* of the Germans, are common; of a dark mahogany aspect, rough, uneven, and laminated; in size and shape not unlike a mulberry. They may also occur rough, crystallized, and white: this, which is not common, is represented in one of Prout's plates. Oxalic acid calculi of very small dimensions, then compared to hemp-seed, have been met with by Marcet. Ratier describes renal calculi; but, as he speaks of the oxalate of ammonia, which is very soluble, and indeed impossible in a fluid containing lime, Willis thinks there must be some mistake. Alternating calculi are both large and frequent; and usually consist, according to Prout, of a uric acid nucleus, one of the urate of ammonia, oxalate of lime, or a mixture of these. Sometimes several laminae similarly constituted ensue; the exterior crust, in both cases, consisting of the mixed phosphates. Occasionally extraneous substances, accidentally introduced into the bladder, musket balls, needles, pins, fragments of bougies, iron, or wood, seed, feathers, or even clots of blood, have formed a nucleus. Mixed calculi, commonest in childhood, and constituting the nuclei of other calculi, consist of the ingredients just mentioned, the lithate of ammonia, or oxalate of lime, in particular. Powdered and boiled in distilled water, the lithate is taken up, leaving the oxalate and phosphates; the latter are dissolved by acetic acid, oxalate of ammonia precipitating the lime, the solution now yielding the triple phosphate of ammonia and magnesia, on the addition of ammonia. Carbonate of lime, though an occasional ingredient, it is said, in phosphatic calculi, is very rare; the phosphate and carbonate of lime go to make up calculi of the prostate gland. Calculi, termed xanthic, fibrinous, and cystic, are very rare, and, practically speaking, of no importance. Xanthic oxide, the uric oxide of Liebig, was described by Marcet. It is analogous to lithic acid in composition; but the residue left by nitric acid is of a lemon yellow. Liebig says it contains one proportion less of oxygen; an assertion, the accuracy of which, when applied to a complicated body of this stamp, Prout justly questions. Fibrinous calculus, also described by Marcet, the fibrin of the blood, is of an amber colour and waxy consistence. Cystic oxide, small, yellow, and crystallized, is not just so uncommon as the others. First described by Wollaston, as taken from a boy, and covered with phosphate of lime, it has been detected by Marcet, Henry, Brande, Prout, Stromeyer, Venuables, and Golding Bird. In an example by Marcet, it subsisted in the kidneys; in Stromeyer's case, it was in the form of gravel; Bird noticed a putrid cabbage odour in greenish yellow urine. It occurred in combination with other calculi, and, in one instance by Henry, formed the nucleus of a lithic acid concretion. Besides the foregoing, other substances, natural or accidental, as the sulphate of potash and soda, phosphate of soda, muriate of soda and ammonia, siliceous, iron, sulphur, nitric, muriatic, acetic, benzoic, and purpuric acids, Prussian blue, bile, pus, and detritus, are mentioned. Medicinal matters, also, as iodine, mercury, citric, malic, tartaric, and succinic acids, acetates of soda and potash, decomposed—the carbonates not so, chlorate, nitrate and prussiate of potash, and sulphate of quinine.

Uric acid calculi are by far the most frequent; very large ones, pounds weight, it is said, as in the case of alternating calculi, have been taken from the bladder after death. Earle and others have extracted

one hundred and upwards from a single subject. Some, to use the language of Chopart, contain a sort of quarry. A case is related in the *Journal des Sçavans* for 1643, in which the bladder and kidneys were completely stuffed. Out of six hundred, Fourcroy and Vauquelin found one hundred and fifty uric acid calculi; and out of eight hundred and twenty-three, Prout detected nearly three hundred of uric acid, alternating and mixed two hundred and eleven, oxalate of lime one hundred and thirteen, and of the phosphates three. In the Glasgow collection, Thomson met ninety-eight uric acid calculi; two composed of the oxalate of lime, while in fifteen the latter subsisted as a nucleus. Urate of ammonia did not occur. Out of three hundred calculi examined by Pearson, hardly one was devoid of uric acid. In the Norwich collection, however, as Yellowly informs us, the proportion is less than a third. The emunctory for carbon in the human body is the lungs—for azote, merged in uric acid, the kidneys—occasionally, as in gouty subjects, the joints. The occasional conjunction of gout, uric acid gravel, and stone, is notorious. How far the functions of the kidneys and skin are convertible in this matter, is difficult to say; but, certain it is, that those who maintain due cutaneous transpiration, are much less liable to lithic acid deposits. In connexion with this subject, I may advert to an interesting observation of Wilson Philip, that acedent food, ordinarily productive of a lithic acid deposit, had no such influence when due action of the skin was maintained by diaphoretics. It is obvious, that excess of azote is consumed in muscular nutrition, a process greatly enhanced by exercise. Sailors, soldiers, labourers, huntsmen, pedestrians—the Esquimaux live on it exclusively, consume azotized food without sustaining inconvenience, but the case is far otherwise with the indolent and replete. Many such, as I have observed, habitually void urine surcharged with uric acid. Indeed I know those who never discharge clear urine except when they grow ill, and when they become unable to continue their wonted excess. Brodie mentions a gentleman who, though he lived freely, sweated himself by morning exercise; this interrupted, his urine began to display red gravel, his skin a scaly eruption. Magendie tells us of a merchant of the Hanse towns who discharged uric acid gravel while his business was prosperous, becoming clear when it declined; and conversely, returned to its old condition when his affairs rallied. But the majority, if they will take the trouble, may observe these alternations in themselves or others. Uric acid deposits, as Cumin remarks, may be met with in children, in conjunction with loose chalky stools and pallid aspect; but do not readily occur again till after forty, when the habits become less active, and the tendency to indulgences of the table greater. At this last period, Prout observes, that we occasionally see in certain modifications of gouty constitution, large quantities of the lithate or urate of soda, occasionally, though rarely deposited in a milky amorphous sediment, sometimes so copious as to assume the consistence of mortar, and block up the urethra. Infants certainly subsist on a highly azotized food, and, among the poor at least, are much exposed to cold and abdominal derangement: the constitution also, after forty, begins to decline, and, among the working classes, is subjected to additional deteriorating influences, inferior indigestible nourishment more especially: how far, however, these complex causes prove influential, we do not exactly know. Certain it is, when

uric acid is in excess, it is apt to display itself in the urine. From a table published by Smith, in the Medico-chirurgical Transactions, it appears that, in a total of twelve hundred and fifty-six calculous cases, occurring in the Bristol, Leeds, and Norwich hospitals, nearly one-half were before puberty; and, of the whole number, only fifty-one females. Civiale, in his treatise *Du Traitement Médical et Preservatif de la Pierre et de la Gravelle*, says that the predominance of solidifiable matter and formation of gravel in the urine, are essentially connected with over-excitement, *état de surexcitation des reins*, and not merely, as Magendie has it, excess of azote. Imperfect digestion and assimilation, one way or other, appear powerfully exciting causes. Uric acid and phosphatic depositions, as I have said before, may alternate in the urine. In my opinion, acids only induce deposits when collateral influences subsist; otherwise, the stomach and kidneys decompose or eliminate them without any such result. Vinegar, and other vegetable acids, were and are consumed by different nations, ancient and modern, with impunity. Prout adverts to the hereditariness of urinary diseases; but the tendency, I should conceive, is not transmitted without the operation of collateral exciting causes. I can concede to this writer, that a full meal of animal food, but hardly bread, shall be followed by a lithic acid deposit. To the connexion of uric acid, with certain pathological conditions I have previously adverted. Uric acid deposits may ensue up to an advanced age; and then, or earlier, should anything occur to shake the health, give place to the phosphatic or alkaline. Children also, from comparatively slight causes, are liable to phosphatic depositions in their urine. The connexion of these with cystic, prostatic, and renal disease, has been already noticed. Earle, Brodie, and Hunkel, have found the earthy phosphates elaborated after injury of the spine; the urine, however, is often acid; oftener, indeed, Rayer asserts, than otherwise under these circumstances. Alkaline urine yields an offensive ammoniacal odour. The urine, in a very few instances, becomes alkaline from long-continued retention; but acidity has also been observed. Acid, not alkaline urine, as noticed before, is met with in typhus fever. The manner in which calculi of oxalate of lime, seeing its entire insolubility, are formed, does not seem very obvious. Renal calculi of this description, according to Prout, involve the presence of some foreign body, or local inflammatory action. He admits, however, that of the hundreds who labour under the diathesis, a few only suffer. As to individuals of sanguineous or melancholic temperament, so termed, being more liable than others, it is mere matter of assumption. Sorrel, in soup and otherwise, is a common article of food in France; but I am not sure that the oxalic acid calculus is a whit more common there than with us. Independent of sorrel, oxalic acid also occurs in the tomato and rhubarb stalk, both extensively consumed. It has been imagined that certain animal and vegetable products were, by some vital process, interconvertible; but into the consideration of this and other conclusions, difficult or impossible to substantiate, I shall not enter. Calculi are more common in England than Ireland, for the simple reason, that the people of the former consume much more azotized food. This, in my mind, has more influence than all the details of air, water, food, and clothing, put together. In other respects, the statistics of calculous disease, notwithstanding the tables of Prout, are very incomplete.

Good operators and hospital accommodations obviously tend to concentrate cases in a particular locality.

There is no certain pathognomonic sign of calculus short of its expulsion, and perhaps the shock communicated to a sound introduced into the bladder. A crepitus is sometimes heard when the stethoscope is applied. Acupuncturo has been suggested. In thin subjects, the calculus, as recorded by Cline, has been felt in situ. Calculi may remain unsuspected in the kidneys possibly for a lifetime, till after some shock, a jolt in a carriage perhaps—I have known a ride do it, the stone is separated, and, passing into the ureter, produces symptoms of ischuria; but more commonly descends into the bladder, with perhaps slight hematuria, and, for the time, cessation of the patient's sufferings. Irritation—pyelitis Rayer would term it, from calculus in the kidney, the oxalate of lime in particular, is attended with mucous discharge, which, coming down in greenish transparent masses, may induce painful distention of the ureters. In these cases, there is apt to be pain, more or less permanent, in the neck of the bladder, back, and loins, perhaps extending over the sound side. Stone lodged in the bladder induces a peculiar uneasiness at the end of the penis, which, being attempted to be allayed by stretching the prepuce, induces elongation of this part. Sometimes there is pain in the testicle of the affected side. Instances, even, are related by Chopart, Van Swieten, and Pott, in which the testicles disappeared. When calculus becomes sacculated in the bladder, the patient's sufferings subside; here, also, a jerk or fall, or, as Prout mentions, the introduction of the finger into the rectum, may reproduce the pain, or the patient may enjoy immunity for the rest of his life. Quiescent calculi, as this writer styles them, are most frequently of uric acid, next to this of the oxalate of lime. Hysterical women, who apply the term to every kind of dysuria, often labour under simulated or imaginary gravel; indisposition of this kind among such is much more frequent than is commonly supposed. The connexion of cutaneous affections, and disordered health, with phosphatic calculi, is well known. Patients, in fact, become pale and cadaverous, infested with a urinous smell, while the water is thick with white deposits. The agony from a fit of stone is most distressing. It seems to arise from a spasmodic attempt to expel the calculus or the urine which it intercepts; the former all the while lying on the painful, exquisitely irritable neck of the bladder. Here the patient, to obtain relief, will often reverse his position, and, by displacing the stone, be enabled perhaps to get rid of his urine. I have witnessed boys, as well as adults, miserably distressed; several of the former, indeed, I have seen operated on at the Hôtel-Dieu. Sometimes the urine forces away the calculus with a jet. The greater shortness, as well as dilatability of the female urethra, is doubtless among the reasons of the comparative immunity of the sex from calculi. Occasionally calculus is impacted, and requires to be cut down upon. Calculous patients may die exhausted, perhaps after an interval free from pain. Before this period arrives, however, the ropy mucus becomes less abundant, more opalescent, and of a purulent character. The urine grows dark-coloured, like washings of flesh, serous, and alkaline. In this last case, Prout affirms that there is almost always excess of carbonate of soda or potash, derived from the serum of the blood, exuded from the

ulcerated inner surface of the bladder. Eventually, the urine becomes scanty, high-coloured, and even acid; an occurrence, almost invariably the precursor of death, which this writer has met with in all forms of cystic disease. On examination, the urine, though alkaline in the bladder, will be found acid in the kidney.

When calculi descend from the kidneys, it becomes desirable that their expulsion should, if possible, ensue before further increase. For this purpose, the patient, when he passes his water, may lean forward, lie on his face, as Brodie recommends, or grasp the penis so as to induce distention and thus flood off the concretion. It has also been found expedient cautiously to expand the urethra with the bougie, on withdrawing which, the stone, the patient leaning forward, may follow. The writer last named, has, in a great many instances, enabled patients to pass stones which had lain in the bladder weeks, and even months. Sometimes the urethra forceps devised by Weiss, in the hands of Astley Cooper and others, operating, of course, on a full bladder, has been the successful means. In many cases, says Rayer, the expulsion, whether into the bladder or externally, of the calculus, and re-establishment of the urinary discharge when suppressed, have followed making the patient walk barefooted on the pavement; a result which appears to have been favoured by dry cupping over the loins and perineum. Emetics, though recommended, appear to possess little efficacy; Rayer has not found spontaneous vomiting useful. Terebinthinate remedies are occasionally so, but there is no certainty in their operation. Should there be any inflammatory complication as regards the kidney, it will be well to apply leeches or cupping with scarifications *loco dolenti*, diluents, and, if necessary, opiates internally. Blisters have succeeded when topical bleeding has failed. The recumbent posture is to be enjoined, and patients should refrain from sexual intercourse. The waters of Contrexeville in Lorraine, containing various saline ingredients and an impregnation of carbonic acid, as facilitating the descent and discharge of calculi, enjoy considerable vogue in France. Any other spring water freely drank fasting, would, probably, be as efficient. Practitioners, from Galen down to Boerhaave, Andral, Littré, and others, have been in favour of large aqueous potations. Even hard water, or a change from hard to soft, and soft to hard, by acting as a diuretic, brings away large quantities of gravel. The treatment of the different species of calculi is not so satisfactory as could be wished. Civiale has little faith in ordinary therapeutic remedies. In fact, it is easier to lay down rules for the treatment of calculi, urolithiasis, than to embody them in practice. When the uric acid diathesis is developed in a weakly, ill-fed child, great attention must be paid to diet and regimen—to protecting the body against injurious atmospheric influences, and to enjoining adequate exercise in the open air. The common soap-pill, or the carbonate of soda or potash in pills with the extract of taraxacum, or calumba powder, may here prove a useful alterative. The children of gouty and dyspeptic parents, as well as those who suffer from urinary diseases, require attention to the state of their urine. Prout has known repeated instances in which individuals, strongly disposed to such affections, have been sent to school, where they incurred stone in the bladder. He would prohibit all sours and sweets, even too much bread and milk.

The urine, from slight causes, becomes acid one day, alkaline the next, so that alcalies must be employed with reserve. This writer has found five or six grains of the carbonate of potash or magnesia, twice a day, two or three hours after breakfast or dinner, occasionally given, sufficient for a child of ten; by which means, with occasional doses of the hydrargyrum cum creta, lithic acid deposits have been kept in abeyance till after puberty, when they disappeared altogether. Generally speaking, says Prout, unless calculus already exist in the kidney or bladder, the appearance of lithic acid gravel, deposited while the urine is warm, is not dangerous. Every thing that disagrees with the stomach should be avoided; and, in particular, the patient should confine himself to an allowance perfectly within the compass of his digestive and assimilative powers. As Prout observes, error as to quantity in diet is of infinitely more importance than as to quality. If luxurious patients, men or women, labouring under gravel, calculus, or both, will not abandon repletion, alkaline remedies, though they palliate, will not remove the disease. It seems clear enough that such, except as lithontriptics or solvents, are in a great measure superseded by temperance, exercise, warmth to the surface, and aperients. Mixed diet of meat and vegetables, restricted as to quantity, is preferable to the former alone. The best drink is pure water or weak tea. Prout condemns malt liquors, and mentions the curious fact, that although those who habitually drink hock and other light wines, cider, or perry, rarely suffer from gravel, yet these exert an injurious influence on persons accustomed to brandied wines. Alkalies, as lime, potash, soda, magnesia, in some aromatic vehicle, are sometimes required as antacids. Potash has been preferred, on account of the greater solubility of its compounds with lithic acid; soda or magnesia, however, is more agreeable to some stomachs. Prout prefers the latter, not so much as regards the stomach, as in presumed acidity of the cœcum and colon, soluble alcalies, unless taken in injurious quantities, being usually absorbed before they reach the lower bowels. As an antacid, he employs the carbonate, not the liquor of potash, associated with a few grains of nitre. Tonics he would give separately, since by associating them, their good effects are apt to be lost. Soda has been more frequently employed as a lithontriptic, yet, for various reasons, potash is certainly preferable. As is well known, it is the urate of soda which forms the solid concretions termed chalk-stones in the joints of gouty persons, and even constitutes the exterior of certain calculi. A difference of opinion subsists as to the quantity. Willis advises half a drachm to a drachm of the carbonate of potash or soda, taken twice or thrice a day, in some mucilaginous fluid; Prout, on the other hand, recommends very small doses, long-continued and largely diluted, so as to imitate the natural mineral-waters of Vichy or Malvern; for although some take large doses with apparent impunity, like the medical man mentioned by the former, who, for twenty years, swallowed every night two rhubarb pills, washed down with a handful of bicarbonate of soda stirred into a glass of water, others cannot bear them. I have known individuals to take it mixed with their drink, in large, and, indeed, injurious quantities, each day after dinner. Practitioners, however, must be observant of such peculiarities. Soap, as in Mrs. Stephen's famous remedy, has often proved an excellent vehicle. The above alcalies are always to be exhibited in

the form of carbonates. As Blane affirms, the citrates and tartrates, though not the sulphates, muriates, or nitrates, are also available. The alkali may be taken three or four hours after dinner, the more so, as uric acid develops itself most freely subsequent to that meal, or, as Brodie observes, only at bed-time. This writer and Brande prefer magnesia, in doses of from ten to forty grains, as not entering into the circulation unless combined with an acid in the stomach or bowels; in which case, Murray's bicarbonated solution would prove a suitable vehicle. Notwithstanding Magendie's averment that alkaline excess in the urine is indispensable to success, the acid reaction, unless we wish to induce phosphatic depositions, must not be too long interfered with. The patient may be furnished with slips of litmus paper, so as in the absence of the practitioner, to regulate the frequency of the doses. Though occasionally administered in small quantities, as antacids, or to soothe the urinary passages, few practitioners, it is to be hoped, are so unobservant as to employ alkaline remedies in the alkaline diathesis, and thereby aggravate the disease. Mascagni relieved and eventually cured himself, by taking carbonate of potash in three-drachm doses, daily, for ten days continuously. A patient of Robiquet, as we see in the seventh volume of the *Bulletin des Sciences Médicales*, after employing, for three months, a very dilute solution of the bicarbonate of potash in water, passed a uric acid calculus the presumed nucleus of a larger one. Peter Frank, however, mentions a man, who, for fourteen years, consumed daily, certainly with some alleviation, half an ounce of soap and three pints lime water; yet, after death, a calculus of eleven ounces was discovered in the bladder. A similar occurrence is related by De Haen, of a person, who, for seven years, swallowed four pints lime water, the same of milk, more-over an ounce of soap, daily. Genois was more fortunate in one, who, after the carbonate of potash had been administered five weeks, in an aromatic bitter effusion, passed, first eleven, then three uric acid calculi. One of these, indeed, by sticking in the urethra, induced painful ischuria, but Genois succeeded in pushing it back with a catheter. The case of a Dr. Lebenheim, who passed numerous calculi at one time, after using the waters of Obersalzbrunn, is recorded in Rust's *Magazin*. Patients, however, often evacuate calculi without the aid of any lithontriptic, while, in other cases, they become sacculated, so as to imply a degree of remedial efficacy, which, perhaps, never subsisted.

One of the indications connected with the treatment of alkaline urine is, if possible, to prevent the lesion of secretion, owing to which, according to some, urea is converted into ammonia, changing the comparatively soluble phosphate of magnesia into the insoluble triple phosphate, with which a little phosphate of lime, derived from the urinary passages, is occasionally mixed. Lithic acid and alkaline deposits may alternate, till the constitution being further impaired, the latter exclusively predominate. In a few instances, the phosphate of lime deposit, it may be after falls and blows on the spine, perhaps combined with a degree of diuresis mistaken for diabetes, is in excess. In some cases, the phosphate of lime and triple phosphate are secreted in equal portions; and Prout relates one in which the carbonate of lime, with a very small proportion of earthy phosphates, was exclusively met with. Ho is of opinion that lime and phosphoric acid result from different diseased actions;

and further remarks, that the simple and triple phosphates may be discharged from the intestines and salivary glands, as well as from the kidneys. In all such cases, extreme attention should be paid to diet and regimen; tender, aged mutton, roasted or broiled, new-laid eggs, warmth to the surface, mental quietude, and very gentle passive exercise in the open air, are to be enjoined. Willis prefers light-made cocoa free from oil, to tea, and sound sherry to other wines. Occasionally, however, I have found the latter to disagree. Bitters, tonics, steel, and infusion of *pareira brava*, *alchemilla arvensis*, or *uva ursi*, are occasionally expedient. Aperients must be employed with reserve; calomel, in any shape, is rarely expedient. Opiates are valuable succedanea; and we shall often find it necessary to have recourse to the soothing influence of moderate doses of black drop or morphia. In a case by Prout, five grains of the soap and opium pill diminished the amount of urine, and procured prompt relief. Opium, in doses of from one to five grains daily, may be called for in severe cases. Patients, however, sometimes far exceed the amount which medical men prescribe: in one instance wherein I had ordered a pretty large dose, the party, to my astonishment, informed me that he was in the habit of using from two to three wineglassfuls of laudanum daily. Belladonna or opium plasters to the loins, and topical applications, as issues or setons, may be expedient. Antacaline remedies, as the nitric or muriatic acids, with or without bark, have more or less influence over the state of the urine. Unhappily, however, they are often nearly or wholly inoperative, and some constitutions will not bear them at all. Brande recommends vegetable acids, as lemonade, with liberal supplies of lemons and oranges. If these do not agree, Brodie would administer from five to ten drops muriatic acid, or, in extreme cases, from thirty to forty of nitric, well diluted with syrup and water, in the course of the day. He instances a young man in whom highly alkaline urine, tinging turmeric paper brown, with great vesical irritability, had been induced by over-exertion of body and mind. The odour was ammoniacal, and the chamber-pot encrusted with the earthy phosphates. Fifty drops of nitric acid, with orange-peel syrup and tincture of henbane, daily, induced immediate improvement, and shortly rendered the urine acid. A gentleman similarly situated, had actually been advised to take lime water; but the more he took, the worse did he become, and the more did the phosphatic deposit increase. Among the instances which have come before me, so common to almost every practitioner, I have seen offensive alkaline urine, more especially when combined with renal, cystic, or prostatic disease, so loaded as to resemble a mixture of mortar and water; here little can be done. Gruithuisen and Jules Cloquet, in a case of uric acid calculus, proposed injecting water, at an elevated temperature, into the bladder. The former, with Prévost and Dumas, conceived that the galvanic current might be efficaciously employed. Rodriguez of Malaga, as we find in Gerson and Julius' *Magazin* for 1834, injected, for forty days, half an ounce white soap, two ounces spirits of wine, and an ounce of lemon juice, mixed with a decoction of barley and marsh mallows, giving the calculus a slight shock twice a day with the catheter, with eventual success. In an elderly gentleman labouring under chronic cystitis, dysury, and alkaline urine, Brodie procured the evacuation of two

small phosphatic calculi, by repeated injections through a gold catheter, provided with a stop-cock and elastic bag, of a solution containing two drops of nitric acid to an ounce of distilled water. In the oxalic acid diathesis, it will be expedient to avoid saccharine food; there are patients, however, who have made no particular use of this diet, and who, perhaps, never tasted articles containing oxalic acid. Prout, who, in one instance, appears to have converted the oxalate of lime into the uric acid diathesis, reprobates lime water, and recommends, generally, the regimen advisable in diabetes. Sherry, or brandy and water, are preferable to malt liquors; in other respects, the allowance should be liberal, with the mineral acids, either alone or in combination with the sulphate of iron or quinine. As to the treatment when cystic oxide calculus presents itself, I know of nothing beyond attention to the general health. The question of the absolute as well as comparative expediency of lithotrity and lithotomy, is freely discussed in surgical works. In all cases, I have only to add, with the distinguished practitioner last cited, that when kidney disease exists, whatever be the nature of the concomitant affection, it should never, for a moment, be lost sight of.

III—URETHRITIS, GONORRHŒA.

THE terms gonorrhœa, blennorrhagia, medorrhœa, are all applied to specific inflammation of the urethral lining; posthitis or balanitis, as in habitual or unreduced phymosis, when the inside of the prepuce and surface of the glans are affected; lastly, gleet, when the discharge becomes chronic. The word gonorrhœa has been objected to on the score of its derivation. Many, indeed—Hoffmann, for example, who defines it, *gonorrhœa nihil aliud est nisi involuntarium seminis ex genitalibus stillicidium*, in conformity with the title, esteemed the complaint a mere seminal flux. Blennorrhagia, meaning a flow of mucus, is almost equally objectionable. The disease commences after two or three days' incubation, sometimes earlier, rarely later, with itching, soreness, followed by pain, scalding on making water, and purulent discharge, while the lips of the urethra appear red, tense, and swollen. The crypts or follicles, as well as the mucous lining, are implicated, and become inflamed and swollen. Occasionally small lumps ensue in the course of the passage, which Hunter refers to distention of the follicles from closure of the excretory ducts. To this writer, preceded by Morgagni, we owe our knowledge of the fact, that pus may be secreted without abrasion of the mucous lining. In other respects, the discharge, after ten or fourteen days' continuance, becomes more copious, and of a deeper hue, verging on green. In this state it may continue weeks, and even months, when it becomes thinner, more sparing, the scalding decreases, and the disease, unless it terminate in the watery, uninfected discharge named gleet, disappears. Before this consummation ensues, however, it may come and go, as it were, several times; I have seen it reappear ten days after it had apparently ceased. As for gleet, it may persist months and years. Painful erections are frequent, particularly in connexion with the condition termed chordee,

in which the corpora cavernosa, probably from deposition of coagulable lymph in the corpus spongiosum, are bent downwards. These are more frequent at night, and entail many sleepless hours. Sometimes slight spontaneous hemorrhage ensues at this period. The lymphatic vessels on the dorsum of the penis occasionally swell and inflame, the inguinal glands, perhaps, becoming affected, constituting what is termed sympathetic bubo. All the adjacent parts, indeed, groins, anus, thighs, and testicles, become tense and painful. Occasionally abscess in the perineum has been observed. The inflammation generally confined to a portion of the urethra, may extend, in old persons more especially, along its whole course, to the bladder, and even the kidneys: to proctitis from this source, I have already adverted. A more common occurrence, often apparently owing to premature injections, is orchitis or swelled testicle, of the left more frequently than the right, once absurdly termed hernia humoralis. Inflammation may alternate from one testicle to the other. The discharge disappears, or, as Hunter has observed, may continue even after orchitis has ensued. Oftentimes there is considerable pain, and, as Broussais in his *Cours de Pathologie* remarks, actual strangury. Samuel Cooper, indeed, mentions symptoms resembling those of strangulated hernia. The writer just named looks on the inflammation as common, not specific: were the vasa deferentia the medium, both testicles should be affected. Swelling and induration, particularly in the epididymis, may last months and years. In some cases, most probably from direct transmission of the purulent discharge, we have gonorrhœal ophthalmia. Other mucous surfaces, also, as Lagneau has shewn, the ears, nostrils, larynx, and even the bronchial tubes, have been affected. Gonorrhœal metastasis, according to Cullerier, to the meninges—peritoneum, through the vas deferens, according to Hunter—the hip, knee, and elbow-joints, according to Cloquet, has been alleged. To the last, the term gonorrhœal rheumatism has been applied; Broussais even mentions dropsical effusion in the knee-joints, in connexion with gonorrhœa, twice in the same individual. Lallemand and others affirm the alternation of cutaneous eruptions with gonorrhœal discharge. Mortification is very rare; Brown, however, in the second volume of the *Edinburgh Journal of Medical Science*, mentions that two inches of the urethra, which, however, was renewed, fell off sphacelous. Bartholinus, Sömmering, and Tode, advert to gangrene of the penis, which I have noticed elsewhere. When gonorrhœa assails the female, it is apt to implicate the vagina, as well as the mucous surfaces of the labia and nymphæ, gonorrhœa muliebris; the urethra, however, as well as the vagina, may alone be affected. There is burning pain at the different outlets, but the suffering is less than in the opposite sex. Ricord divides bleunorrhagia, as French writers term it, into urethral, vulvar, vaginal, and uterine. In men, the discharge will terminate spontaneously, but in women, at all times copious, it is apt to become chronic, and is then with difficulty discriminated from leucorrhœa. Cullerier and Ratier advise the canal of the urethra to be pressed outward, in which case a globule of pus, in the event of the lining being affected, is expelled. Baglivi says that during menstruation, leucorrhœa disappears, whereas gonorrhœa persists. It is not generally known that children are liable to spontaneous purulent discharges, which simulate gonorrhœa; I have seen

pain, tension, and œdema, in the female parts—painful erections with sympathetic bubo in the male, both without the suspicion, or, indeed, the possibility of polluted intercourse. Instances of spurious gonorrhœa are related by Mackintosh, Ferriar, and Kinderwood. Ignorance as to its nature has led to the apparent substantiation of false accusations, and loss of life. Percival mentions a surgeon in Manchester, who by supporting a charge of this kind, nearly caused the death of an innocent boy; Astley Cooper adverts to other instances still more disastrous.

Some esteem gonorrhœa and lues identical, and that while gonorrhœa gives rise to chancre, the latter may originate gonorrhœa. Hunter, formerly, Cullerier, Ratier, Lagneau, Delpech, Lallemand, Gibert, Carmichael and Evans, at the present day, appear to advocate the identity of these disorders. Lagneau, in his *Traité de la Maladie Syphilitique*, asserts that the blennorrhagic virus applied to a healthy mucous surface produces chancre, and that matter from primitive or secondary sores is capable of inducing gonorrhœa. Without denying their occasional concurrence, the experiments of Bell and Ricord demonstrate these affections to be radically distinct. Gibert, indeed, would throw disparagement on the conclusions of the latter, because inoculation failed in cases in which there could be no doubt of the contagious nature of the malady. Ricord states instances in which syphilitic ulcers apparently originated in gonorrhœa, but here lurking chancre was always discoverable. Gonorrhœa, in fact, is said not to have made its appearance for a hundred years after syphilis. Two students cited by Bell, with the expectation of producing chancre, introduced pledgets of lint, saturated with gonorrhœal matter, between the prepuce and glans. In one, balanitis with severe phymosis ensued; in the other, ordinary gonorrhœa, which lasted a twelvemonth. Not satisfied, the first of these inoculated afresh the prepuce and glans with gonorrhœal matter on the point of a lancet, each time, however, with slight impermanent inflammation. He then thrust the matter of chancre four lines deep, on the point of a catheter, into the urethra; painful chancre, suppurating bubo, with ulcers in the throat requiring confinement and mercury, were the result. In the first case by Ricord, pus flowing from chancres at the root of the glans was inoculated into the right thigh, the matter of concurrent blennorrhagia into the left. In one, the characteristic pustule followed by chancre, was observed; in the other, prompt cicatrization. In the next, inoculation gave a positive result for the pus of chancre, a negative one for the gonorrhœal discharge. Gonorrhœa with chancres on the labium and neck of the uterus, having presented themselves, matter taken from the latter was inserted, on the eighteenth of April, with a lancet, into the patient's left thigh. This was followed by a well-formed vesicle on the twentieth, on the twenty-second, by a pustule full of pus, and subsequently well-marked chancre with sharply-defined margins and dark base. The ulcerated points were now cauterized with the nitrate of silver, and dressed with ointment composed of calomel and opium. Several instances of larvated or masked chancre, in which the latter was seated on the neck of the uterus, or inside the lips of the urethra, are given. And there can be little doubt that such was the nature of those cases in which lues resulted from the apparent application of mere gonorrhœal discharge.

I have only to observe, that inoculation with the matter of chancre, so far healed as not to secrete the poisonous virus, was not successful. In other respects, combined chancre and gonorrhœa produce both sympathetic and symptomatic bubo.

The treatment of gonorrhœa is very unsatisfactory; it will sometimes yield early, at others, resist the best concerted measures for months. Mild aperients, copious diluents, cleanliness, and low diet, are about the best, though certainly not the most stringent measures with which we are acquainted. As to warm baths, Ricord has known them to revive the complaint when apparently expiring; while diluents, in other respects less frequently required by women, by inducing repeated calls to make water, tend, he conceives, to spread the disease. If it were possible, indeed, as Gibert, in his *Manuel Pratique des Maladies Vénériennes*, observes, to suppress the malady at its very onset, it would be best; but this result, unhappily, is difficult to accomplish. Bell, Ribes, and others, have employed early injections: Lagneau, however, as do most others, prefers the latter during the chronic stage. A great variety, solutions of the nitrate of silver, as recommended by Carmichael and Serre, bichloride of mercury, sulphates of zinc and of alumina, acetate of lead, in suitable proportions, have been resorted to. Lallemand speaks of the solid nitrate being carried down to the affected parts by means of the port-caustic. Velpeau has cured five or six obstinate cases of gonorrhœa, when the disease had not gone beyond the bulb, by means of injections, one or two grains of the nitrate of silver to the ounce, repeated, keeping a finger on the bulb, two or three times at once, twice a day. This done, he applies small compresses along the course of the urethra, maintaining them in situ by means of a circular bandage moistened with starch. Balanitis is readily subdued by passing a thin pencil of lunar caustic over the affected parts, which would be equally the case with urethral gonorrhœa, if we could get at it; poppyhead and other emollient injections may also be resorted to. Ricord speaks of thirty or forty leeches to the perineum; a procedure to which few English practitioners would resort or patients submit. Abscesses in the course of the urethra must be punctured; the outlet soon closes. Copaiva, cubebs, of which the efficacy is inferior, and turpentine, may be exhibited by the mouth; in the form of enemata, being less easily retained they are not so efficient. Some, as Larrey, first exercising compression below the scrotum, have afterwards injected copaiva into the canal of the urethra. Copaiva, taken internally, may be mixed with honey, made into an aromatic emulsion, along with tincture of cubebs; or it may be solidified with magnesia, and dipped into a solution of gelatin, so as when dry, to furnish it with a capsule or covering, by which however its activity is impaired. Chopart recommends mint water, spirits of wine, copaiva, capillaire, or orange-flower syrup, each two ounces; orange-flower water one ounce, nitrous ether two drachms, in wineglassfuls thrice a day. Cubebs, if early and freely given, often prove useful; if adulterated, however, or with females, they have no effect. They may be taken very well in water. Velpeau, in his *Leçons Orales*, mentions, that he has long been in the habit of employing a mixture of two drachms of copaiva, four or six of cubebs, made into a paste, with magnesia and two grains of opium, divided into six portions, to be taken morning.

noon, and night. He then remits the medicine for a day, resuming it again, and so on, till the disease, if fortunate enough to secure this result, disappear without return. I have repeatedly tried a mixture of copaiva, tincture of cubebs, nitrous ether, and honey, with tolerable success. Chordæ, with painful erections, is best relieved by opium and camphor pills. Should inflammation seize the neck of the bladder, opiate injections have been recommended: the treatment of prostaticitis has already been entered into. In case of orchitis, leeches, stupes, and perfect rest, are expedient; a suspensory bandage, or in default of it, a silk handkerchief, should be resorted to. I have found a smart emetic once or twice to dissipate it. Should induration of the epididymis persist, mercurial ointment, mixed with camphor, proves useful. Ribes mentions instances in which copaiva was of service. Fricke's methodical compression of the inflamed testicle, with straps of adhesive plaster cum mercurio, has often caused diminution and eventual cessation of the pain and tension. Strictures, which Ricord ascribes to long-continued and often-repeated gonorrhœa, may demand artificial dilatation, commencing with bougies of small diameter, occasionally dilatation and cauterization combined. When gonorrhœa becomes chronic, or lapses into gleet, antiphlogistics are no longer available; astringent injections, the shower bath, and perhaps change of air, with tonics, bitters, steel, and a suitable allowance of nourishment, will prove expedient. The solid nitrate of silver, or injections of the solution, are best in those rare cases, mostly in females, in which gonorrhœal inflammation extends to the rectum. In permanent phymosis, with lengthened prepuce and cutaneous induration, circumcision is indicated; otherwise simple section or removal of a fold in the shape of a V will suffice. In paraphymosis, the glans, surrounded by a compress dipped in cold water, and squeezed between both hands, must, if possible, be reduced; but if this be impracticable, a free incision may be made with a straight-edged bistoury thrust under the bridge, formed by the swollen body of the prepuce. In case of gonorrhœa in the female, frequent baths and topical injections, consisting of a solution of the nitrate of silver, are best. Here also the solid nitrate answers well. Ricord advises isolation of the labia and vaginal walls by means of pledgets imbued with narcotico-emollient fluids. Should strangury ensue, catheterism may be required. Sometimes it has been overcome by topical applications of belladonna ointment. Infiltration of the labia and nymphæ demands rest, sometimes a few lancet punctures. Should vulvar abscess ensue, the contents, usually fetid, must be promptly evacuated; the fistulous orifice may afterwards be cauterized with nitrate of silver. In inflammation of the ovaries, we may cup or apply leeches to the sides and base of the abdomen and sacrum. In gonorrhœal metritis, Ricord has had recourse to injections of the acid nitrate of mercury in twelve parts water; which, being too strong, induced hysteria and threatening of apoplexy, demanding venesection. Six grains of the nitrate of silver to the ounce of water, whereby some were cured by the second, others by the third injection, appeared preferable.

IV—SYPHILIS, LUES VENEREA.

THE origin of syphilis is unknown. All we can say is, that from the date of the expedition of Charles VIII. of France, against Naples, August 1494, a new, and till then, unheard of malady broke out, which afterwards spread with great rapidity over Europe and the world. It was termed the French disease, *morbus gallicus*; also the *grande verole*, or great pox, in opposition to the *petite verole*, or small pox. The hypothesis of its importation by Columbus seems neutralized by the circumstance of its appearing, though shortly, before the return of that renowned navigator, and by the absence of all mention of so terrible a disease on board his ships. By some it is referred to the inferior animals, now it seems, insusceptible. At one period it was supposed to be much more infectious than it really is; and persons who, from their functions or position, might be supposed exempt, made no scruple of avowing its existence. Much curious historical information may be found in the fifth chapter of the first book of Astruc. The disease apparently, is not peculiar to one part more than another; that it is most commonly met with in the sexual organs, simply arises from their being the most frequent point of diseased contact. Ulcers, termed chancres, and symptomatic inflammation of the inguinal glands, known by the name of bubo, are the primary, as well as the most frequent forms of syphilis. Subsequently and consecutively, however, we may have ulcerated pharynx and tonsils, iritis, pustular, papular, vesicular, squamous, and tuberculous eruptions, condilomata and other excrescences about the anus and genitals; lastly, caries, necrosis, exostosis, and disease of the periostium. Syphilis may be communicated by natural or unnatural relations; a child may come diseased into the world, or contract the malady during its transit through the infected vagina. The lips or throat also prove the seat of chancre; a midwife or accoucheur has been known to receive or impart syphilis owing to a tear about the nails or chancre in the fingers; while sometimes a spoon or drinking vessel has proved the noxious intermedium.

Chancre, the primary symptom, arises from direct inoculation of the venereal virus; it may be induced on the skin or mucous membrane, and presents, as Ricord and Colles observe, such varieties, as apparently to constitute a different disease. The least scratch may become the seat of chancre; and pus taken from any form of it, at the proper period, invariably induces what Ricord terms a pustule, Astley Cooper a pimple, Cullerier a vesicle; if applied to the denuded tissue, an ulcer, to the cellular tissue, abscess and bubo. A person, as Hunter has long since shewn, may contract phagedenic ulcer from one who labours under slight chancre, and conversely. By means of inoculation, Ricord discriminates between the ulcerative stage which sometimes lasts eighteen months, and the reparative, in which chancre becomes a simple non-specific sore. Primitive ulcers are usually seated in the genitals, whereas, the throat is the ordinary locality of secondary sores. Though syphilitic ulcers, as Blandin remarks, often bear a close resemblance to others, they are commonly round, with hard, violet, elevated margins, deep grey base, and sparing sanious discharge. There is a pit, says

Astley Cooper, which perhaps extends beneath the skin, with red, hard, ragged edges, and yellow surface; while the base, the thickened base of Hunter, feels hard like cartilage when lifted between the fingers. On the frœnum, chancre usually induces erosion and perforation, sometimes the loss of the part. On the crown of the glans, or the glans itself, it is apt to go deep, half encircling, and perhaps destroying the part. Chancres never form immediately; there is a period of incubation or latency, of from three to five days. Cullerier states—a doctrine strongly opposed to Swediaur, that in uncomplicated cases, chancre runs its course in about thirty or forty days, healing up, and leaving a little induration which gradually disappears. In others, however, the ulcers spread, fresh ones form, unite together, involving the glans, urethra, and even the navicular fossa. Phymosis and perforation of the urethra, with hemorrhage, and possibly gangrene of the prepuce, may ensue. Gibert, however, has never witnessed mortification of the genitals, except in bad fevers affecting broken-down syphilitic subjects. The number of chancres is variable; Cullerier and Ratiez have witnessed so many as eighteen. They may ensue simultaneously or in succession. *Ulcus excavatum* is a term applied to chancre on the glans, *ulcus elevatum* where the cellular tissue is loose. The latter is not always readily distinguishable from what Ricord terms mucous tubercle or condiloma, on or near the anus, umbilicus, axilla, external meatus, mouth, and behind the ears. It is, however, always preceded by chancre; but, unlike it, the matter secreted produces no result on inoculation, though, according to the foregoing writer, infectious by sexual contact: it appears to consist of chancre in a state of vicious reparation *in situ*. Phagedenic chancre, most common on the glans, is marked by inflammation, and a tendency to spread. It sometimes does so, Carmichael observes, with great rapidity, or it may creep on slowly, healing in one part, and making progress in another. Sometimes it closes only to reappear in the same locality. Here, mercury aggravates the disorder, and may induce loss of life. Sloughing ulcer is even worse than phagedenic; destroying, as Carmichael relates, the penis, scrotum, perineum, and pubes, in one sex; the labia, nymphæ, vagina, anus, nates, and, he believes, the bladder and uterus in the other. If its progress fortunately be arrested, the orifice of the urethra becomes so contracted, that it is difficult to preserve the passage. Cooper speaks of having seen seven women with sloughing chancre in one small ward in St. Giles' workhouse, of whom five died. In other respects, Wallace divides phagedenic chancre into chancre with and without slough, which latter may be dark or white. Carmichael and Hennen mention chancres of different aspects subsisting at one and the same time; the former, indeed, goes so far as to contend for a plurality of venereal poisons, severally marked by different eruptions, papular, pustular, and squamous. He does not admit that phagedenic ulcer depends on difference of constitution merely. He grants however, and justly, in his recent clinical lectures, that Dr. Ferguson's case of the officer with red swelled penis, malignant, ugly chancres on the prepuce and glans, took on its phagedenic aspect from the accidental accession of inflammation. He further urges—a doctrine from which I would dissent, the production of phagedena and chancre from different morbid poisons. Natives of Spain, Portugal, and America, have the disease in

a mild form; yet, as Guthrie, Hennen, and others have observed, may communicate it, under the severest to those of northern regions.

Bubo is the next immediate, though far from necessary result of the venereal poison. Generally severer in men than women, it is attended with local pain and tension, rapidly followed by a hard, round, or oblong tumour, which must not be confounded with hernia, not larger than a nut, but gradually increasing to the size of an egg, or even the fist of the patient. In the absence of resolution, it goes on to suppuration, and, in some instances, phagedenic ulceration and sloughing. The severity of buboes, Cullerier and Gibert observe, bears no direct relation to that of the primitive sore; they may even be absent altogether when the penis is nearly destroyed. Bubo may ensue on both sides, more commonly on one. Hunter conceived that the syphilitic poison might give rise to a scrofulous bubo; Assalini and Colles aver the production of bubo from the application of venereal ointment. It is formally asserted by Swediaur, Lagneau, and Gibert, though denied by Astley Cooper, that buboes, termed *d'emblee* by the French, may take place without precursory chancre. Lagneau mentions two instances, one of them in a young officer whom he attended for two large inguinal buboes, coming on a month after suspicious intercourse, without gonorrhœa, chancre, or other local irritation. Cooper and Ricord both advert to the two rows of absorbent glands; the first in the line of Poupart's ligament, the second two inches lower, both of which may be affected. In the last case, however, matter, should any be produced, leads to no result on inoculation. Virulent bubo, Ricord affirms, is analogous to chancre, differing only in form and situation. Sores which furnish no inoculable matter, according to him, are non-specific in character, and never followed by secondary syphilis. Sometimes, according to Carmichael, when inflammation extends to the corpora cavernosa, matter, indicated by pain and tension, forms under the ligament of the penis, in which case a timely opening prevents disorganization of the part. Colles mentions that a sinus sometimes extends from the pubic corner of the chancre, occasionally also superficial ulcers on the thigh or abdomen.

When chancre and bubo subsist for some time, the virus is apt to be taken up by the constitution, followed by secondary and tertiary disease. Syphilis, though the contrary be asserted, does not affect the vital organs directly; but the cachexy which it entails may lead to tuberculous degeneration in the lungs and elsewhere. Cold, according to Hunter, determines the malady in parts nearest the surface; syphilis, at any rate, is milder in warm climates than in cold, in summer than in winter, in heated apartments, and with abundant clothing, than the reverse. Neither the blood, nor any other secretion, any more than the matter of secondary sores, is capable of inducing the disease. Colles, in opposition to Hunter and Ricord, affirms, that secondary disease is communicable. A surgeon, he relates, with ulcer termed secondary, on the lower lip, imparted chancre in the same situation, followed by enlarged lymphatic glands under the jaw, to a young lady to whom he was paying his addresses. He also adverts to a case by Dr. Healy, which I need not reproduce. Cooper, who hesitates, also mentions a gentleman who, four months before marriage, had chancre healed by local applications, but, nevertheless, communicated syphilis to his wife. Carmichael, in his lectures, speaks of young married

women above suspicion, affected with constitutional symptoms, their husbands labouring under secondary eruptions and sore throat. Indeed he contends for the production of ulcers from contact of gonorrhœal matter; and conceives, that mild forms of disease are ever arising from the intercourse of persons even in health. When we consider the risk of error or deception, and find Ricord affirming that he has discovered primitive ulcers of the lips, tongue, pharynx, and anus, these apparent exceptions will not be considered to have the same weight. Individuals labouring under prurigo, as well as chancre, often further inoculate themselves by scratching in different parts of the body, and produce sores capable of reinfecting. Secondary symptoms have ensued a fortnight after the formation of chancre; from the eighth to the sixteenth week, according to Cooper, is a more average period. Diarrhœa, and other affections, protract their appearance.

Cutaneous eruptions, whether in the infant or adult, are the most frequent, as they are the mildest form of secondary syphilis. Hunter mentions them as affecting the whole surface; Bateman, as assailing the face; Cooper, while he asserts their first appearance on the face and head, affirms their greater prevalence on the palms of the hands. Often, says Samuel Cooper, they attack the finger, forming a kind of onyxia, the nail being apt to separate; the hair also may fall off, constituting syphilitic alopecia. Rose is among those who side with Carmichael, as to the greater frequency of papular eruptions after simple primary sores; Cullerier and Ratier, indeed, go so far as to say, that they may occur as a primary affection, communicable by commerce of the sexes. Pustules, though now comparatively rare, were frequent, it is alleged, on the first outbreak of pox, thence so named, or syphilis. The coppery hue, according to Cullerier, is often absent, or it may be present when lues does not exist. The French bestow on those eruptions which heal with ordinary treatment, and which have a striking tendency to the circular form, the term *syphilides*. They may be exanthematous, vesicular, pustular, papular, tuberculous, and squamous. Cold favours their development, heat represses it: often associated, they are more chronic than acute. Syphilitic roseola, which may come and go in the course of a few days, or persist for months, occurs in large irregular, oftener rounded coppery spots, which, according to Bielt, have been mistaken for measles. He has only met with it three or four times, Cazenave and Schedel but once, in a girl, attended with general fever, and a round ulcer in the pharynx. A month after leaving the hospital, she was found covered with pustules. Vesicular syphilis is excessively rare; in the few instances met with by Gibert and others, it occurred under the resemblance of eczema and varicella. Herpes and eczema of the genitals, he does not esteem syphilitic. Pustules, sometimes confounded with papulæ, are small, narrow, conical, and grouped or psyzacious. Their base is hard, and they are surrounded with a copper-coloured areola. They rarely ulcerate; and then only when several unite. They occasionally appear phyzacious or isolated, large, flat, with perhaps a central depression. They sometimes take on the aspect of ecthyma syphiliticum, of which I witnessed two examples; one of them, in which it extended over the whole surface, in a medical student, from chancre on the hand, incurred during midwifery attendance. Cazenave and Schedel saw pustular syphilis congenital; Cullerier says

it is only met with in confirmed cases. In syphilitic rupia, of which I recently saw a well-marked instance in a young carpenter, the scabs are very considerably larger. Tubercles, round, flattened, or conical, from a pin head to a pea in size, are so often met with on the nose and commissures of the lips, as to be in a measure pathognomonic. Smooth and shining, they induce neither pain nor ulceration, and may remain stationary for years. Others however, ulcerate and become covered with crusts, so as perhaps to cause the alae nasi to fall off, and even a portion of the lip to be eroded. Destruction of the nasal bones and cartilages begins internally. Tuberculous ulceration, which Cazenave and Schedel affirm is sometimes primitive, the flat pustule of Cullerier, is occasionally met with on the penis, scrotum, and thighs, as well as the nose, lips, and cheeks. Syphilitic papulæ are small, hard, and slightly protuberant, terminating in desquamation without abrasion. Papulæ, Carmichael observes, are the most simple and curable of syphilitic eruptions; lichen agrius, however, may prove severe and obstinate, and even be attended with ulceration. Syphilitic papulæ, particularly on the palms and soles, sometimes come in a few hours, and persist for years. Cazenave and Schedel relate, how a patient covered with them was sent into La Pitie, as one labouring under small-pox. Cullerier describes the corona veneris on the forehead and temples as papular. *Proriasis guttata*, according to Bielt, is the most usual of squamous syphilitic eruptions; but common lepra, as well as *lepra nigricans*, have been observed. Indeed, here Carmichael follows Becket in thinking, that what was formerly termed leprosy was nothing else than syphilis. Ulcers, according to Hunter, present themselves with a fair loss of substance, dug out of the tonsil, as it were; according to Bacot, excavated, with red humid margins and ash-coloured base. They may be combined with papular and other eruptions, also iritis. Sometimes the rima, epiglottis, and larynx ulcerate, and the patient perishes of syphilitic laryngitis and venereal hectic, according to Astley Cooper, a frequent source of destruction. Some, Colles remarks, experience painful sensations in the throat, when the parts on inspection prove sound. Sometimes an ulcer, disclosed by making the patient inspire forcibly, is concealed by the veil of the palate. Ulcers may be so situated as to impair deglutition: they have been seen close to the anterior palatine arch, and perhaps on the base of the tongue. Occasionally the voice is nasal with painful desire to draw down mucus, while drink regurgitates through the nose. As the sore improves, however, so does the power of speech and deglutition. A whitish mucous crust, without abrasion, may subsist on the throats of those who labour or have laboured under venereal. It is most obvious in the morning, and may persist months and years. I have met two or three well-marked instances of it; and Colles even mentions having seen it in women of unblemished characters. Should ulcers slough, the velum, both tonsils, and back of the pharynx, may be converted into a pultaceous mass. The patient is hardly able to swallow the blandest fluid; the saliva that flows by day threatens to suffocate by night, with emaciation, prostration, and venereal hectic. The carotids even may be perforated, and death ensue. At other times the hemorrhage is venous, and I have witnessed deplorable anomia. Colles relates an instance in which an apothecary spat up part of the ring of the first vertebra, necrosis having ensued. It may

happen that the communication between the mouth and nose is closed up, a white shining cicatrix being substituted. Fissures of the tongue, with venereal ulcers of the cheeks and gums, sometimes take place. Ulcers of the *alæ* commence in the angle between the nose and cheek; but the septum may be perforated, and *œzena*, it is said, ensue, apart from syphilis. Iritis is another disastrous form of secondary syphilis. Syphilitic sarcocele, not to be confounded with gonorrhœal orchitis, Ricord esteems a secondary, Colles a tertiary affection. It is attended with nocturnal pains; and while it may be seated in the epididymis or spermatic cord, is most common in the body of the testicle.

The third order of parts which syphilis attacks, are the ligamentous structures, periosteum, and bones, producing nodes, exfoliation, syphilitic osteitis, and necrosis. It is one of the important discoveries of recent times, that these affections are not so much the direct effects of syphilis, as of the improper administration of mercury. In cases treated by Rose, Guthrie, and Hennen, without this mineral, caries was never witnessed; yet, it appears from certain observations, till of late overlooked, that Palmarius, Fernelius, and Fallopius, were well acquainted with this fact as we are at the present day. Ricord, however, has witnessed syphilitic osteitis without mercury; and I would look upon it as a joint result of the mercurial and syphilitic poisons. We cannot, Hunter observes, be certain of the part that may be affected; he has known great pain and perhaps suppuration of the ear. Astley Cooper thinks that ulceration spreads from the mucous membrane to the nasal bones. Under such circumstances, if mercury be given, fresh exfoliations are induced, the bridge sinks, and horrible deformity ensues. With proper treatment, no patient, this practitioner avers, ever lost his nose. Incrustations form first; these being removed, blood and pus follow; then fresh incrustations, the denuded bone exfoliating. Syphilitic osteitis is usually chronic, with nocturnal pains, which however occur in gout and rheumatism, but it may take on a subacute character. Nodes, with local effusion of coagulable lymph or osseous matter, ensue on the tibia and cranium, the harder portions more frequently than the soft cancellated extremities. Nodes on the hands and feet are more difficult of removal than on the hard bones; resolution, however, is easy when lymph only is poured out. Suppuration readily attacks the spongy bones, as those of the face. I gave advice to two brothers, both affected with necrosis of the cranium. One died labouring under tubercle, hydrothorax, and anasarca; the other still lives, ulcers, with subjacent caries, subsisting one on the frontal bone, one over the sagittal suture, and one on the occiput. Carmichael and Colles mention effusion into the synovial membranes of the larger joints.

In the infant, syphilis may ensue before birth, through the medium of the circulation, the mother labouring under constitutional disease; secondly, by coming in contact with primary ulcers during its transit into the world; lastly, from sucking a nipple surrounded by primary sores. In this way, a diseased nurse may infect one or more children; and, conversely, children with primary sores become foci of disease to others. It seems demonstrated from the experiments and observations of Hunter, Ricord, and others, that secondary affections, whether by inoculation or contact, do not communicate the disease.

Mr. Colles, however, conceives that the complaint may thus be transmitted, if not directly, at least through the intervention of the seminal fluid and breast-milk. He speaks of five or six instances in which men, free from all appearance of syphilis at the date of their marriage, though they had it nine months before, infected their wives, secondary symptoms, as raised ulcers on the pudenda, appearing four months after. This writer admits that the husband's assertions as to a perfect cure, are not always to be relied on; to which we may further add the possibility of masked chancre, actual deception, or subsequent misconduct. When occurrences like these can be explained by the ordinary laws of disease, it seems better than to have recourse to some unnatural or unusual anomaly. Ricord mentions a person, who, having had intercourse with a chancreous subject, without washing in the interval, infected his ordinary mistress, while he remained free himself. Colles even avers the production of syphilis in the fetus in utero, the father and mother, the former previously treated for primary symptoms, after minute examination, being pronounced in perfect health. If both parents be affected, so much the worse for the child, which, as Simon, in a paper—*über syphilis congenita*, in the *Medicinische Zeitung*, observes, is apt, if not born dead, to become a scrofulous, rickety cripple: *leiden Beide an ungedampfter Seuche, so kommt es selten zu einem lebenden, noch seltener zu einem gesunden lebenden Kinde*. If, as he says, a child be infected by sucking a nurse labouring under secondary symptoms, these must be directly communicable, or the disease is so through the intervention of the milk. If the breasts of the nurse and mouth of the child, observes Cullerier, be simultaneously affected, we remain in doubt; if the breasts be affected, and the child elsewhere than in the mouth, it is probable the latter was first ill, and conversely with the nurse; and if the child display consecutive symptoms, his disease is probably hereditary. Bertin, in his *Traité de la Maladie Vénérienne chez les enfans nouveau-nés, les femmes enceintes, et les nourrices*, is of opinion that the disease is communicable by the generative act; also during gestation and labour, and after birth by kissing or lactation. This writer calls attention to the fact, that a child may labour under temporary syphilitic affections, which, after disappearing, perhaps return again. He also mentions that some, born of syphilitic parents, to which I would add, if they obtain a good nurse, escape altogether. The mother may miscarry, or the child come into the world labouring under copper-coloured eruptions and other secondary affections; or these may not ensue till some time afterwards, when the voice becomes raucous, superficial ulcers appear at the corners of the mouth, the inside of which is covered with apthæ. Many wear an aspect of premature decrepitude. Speaking of *lues infantum connata*, Plenck observes—*tales infantes nascuntur cum maculis cuprei coloris circa anum, perinaeum, scrotum, vel vulvam, quandoque circa totum corpus. Hae maculae intra aliquot septimanas in superficialia lardacea et serpentina ulcera abeunt. Non raro fauces et commissurae labiorum simul eroduntur. Inde vox rauca, clamores nocturni, noctes insomnes, deglutitio difficilis, tabes, mors*. Mr. Colles admits that ulceration does not ensue in the maternal nipples when the child derives the infection from its parents, but that a hired nurse is apt to suffer in this respect. This interesting question, touched on by Fallo-

pius, Riverius, Boerhaave, Rosen, and other early writers, still remains in considerable obscurity.

From reports in the Army Medical Board, syphilis would appear much more frequent among troops stationed in the East Indies than the West, but owing to what, does not appear. Abernethy was completely in fault in his inference as to the non-syphilitic character of cases which recovered without the exhibition of mercury. The constitutional disorder induced by transplanted teeth, bears a close resemblance to syphilis. In Scotland, Iceland, Sweden, and elsewhere, certain modifications termed sibbens, scherlievo, radesyge, are witnessed; some even suppose that yaws are syphilis under another aspect. Carmichael speaks of button-scurvy, so termed, among the Irish peasantry. It consists of flat tubercles, and might, he says, be mistaken for phagedenic disease. The generative organs, however, are liable to ulcerative disease unconnected with venereal, and not followed by secondary affections. Here, the criterion, as laid down by Ricord, is the inoculability of primary venereal sores, and the reverse of all others. The individual suffers nothing from the process, since the progress of chancre, as admitted even by Cullerier, is effectually arrested by cauterization. In other respects, the former is as much opposed as any one to inoculation in a healthy subject. Dr. Luna Calderon, however, practised it with perfect impunity on himself, arresting the progress of the resulting chancre by a secret, doubtless caustic preparation. Ricord mentions that wounds or leech-bites in venereal subjects do not become infected, unless syphilitic matter be introduced; were it otherwise, as Jourdan remarks, every scratch would become a chancre. All the secretions, whether normal or otherwise, have been tried, but none produced constant results, save the matter of primary ulcers. Once the poison has passed through the ganglionic system and entered the blood, it seems insusceptible of further direct transmission. Muller and Donné speak of a microscopic insect, which they term *vibrio lineola*, discovered in chancres of the glans, also the *trico monas* from pus in the vagina.

The treatment of chancre is the first and most important point in the consideration of syphilis, since, it is obvious that if this affection, at first purely local, could be got rid of, we should not only obviate the further progress of the disorder, but happily elude the risks and uncertainties which attend it; and even, perhaps, as Cullerier observes, go far to ensure the extinction of syphilis itself. It does not necessarily follow that if chancre be healed, even weeks after its outbreak, that the constitution shall suffer. Whether or no, the first indication is to get rid of it. Hunter was of opinion that by destroying the chancre immediately, there was little danger to the constitution. When large, however, we cannot be certain as to caustic or excision; and in this case he recommends mercury. Astley Cooper's direction to apply simple dressing to a doubtful sore, and then wait for secondary symptoms, is one which I trust few will follow. We cannot too soon get rid of all sores, doubtful or otherwise. Chancre will often heal spontaneously, as well as in spite of improper treatment; but so long as it lasts, it subjects the patient to the risk of constitutional contamination, and fresh local infection. It is absurd to allow it the slightest respite, any more than we would the bite of a venomous serpent or mad dog. The nitrate of silver, pointed so as to reach the base and slide under

the edges of the little ulcer which the rupture of the vesicle or pustule entails, should be freely applied. Ricord, in a few instances, has nipped off the pustule with a pair of curved scissors; and further urges the reiteration of the nitrate, which, in large chancres, he would exchange for caustic potash, till the fall of successive eschars had induced a common, in place of a syphilitic action in every part, whether the base or sides of the sore. None of the chancres which he treated were of less than from ten to fifteen days date; others, again, were from three to six weeks or more. Cullerier never observed the disadvantages from early, repeated superficial cauterization, which exempts the patient from every risk, that Swediaur, Lagneau, and others, have adverted to. If early and carefully performed, says Ratier, in the *Archives Générales de Médecine*, the contagious matter is decomposed. The little vesicle or pustule, about the size of a grain of millet, developed from the third to the eighth day, should be cauterized, if possible, while whole, success being then so much the more certain. Gibert thinks that herpetic vesicles or the pustules of acne may have been thus treated; he is, however, an advocate for the application of the nitrate of silver. When a patient applied, with ulcer in the first stage, Carmichael instantly endeavoured to destroy the entire surface. He finds the solution, two or three grains to the ounce, also to answer. Ribes speaks in the strongest terms of the benefits of cauterization; he has employed it with the greatest success. Venereal chancres, according to him, at the onset are commonly superficial, covered with a thin pellicle, and most frequent where the inner membrane of the prepuce is reflected on the glans. He mentions the case of an officer of rank at Valladolid, with five chancres round the crown of the glans, all of which were removed before the tenth day, by two applications of the lapis infernalis. Sixteen years afterwards, this officer called to assure him of his uninterrupted good health during the interval. In painful chancres, he observes, the disease is apt to remain long local; and he has seen such, perhaps, much inflamed and extending rapidly, yield completely to a few applications. He would not employ mercury in cases in which the chancre had disappeared, the patient otherwise remaining well for six months. Chancres, at first, may be dressed three or four times daily, not with greasy ointments, but some simple application, say water dressing. Gibert has seen such, with low diet, rest, and, in some cases, change to a warmer climate, to do well, when the usual routine had completely failed. Ricord is for washing the ulcer with two scruples of the tincture or wine of tannin, in an eight-ounce mixture; covering it with lint slightly imbued with the same, answers every purpose. If granulations prove exuberant, cauterization may be employed afresh. Ricord says the patient may resume sexual intercourse, the chancre being completely cicatrized, and no induration remaining, as the latter entails danger of relapse. Chancres under the frænum demand its division before cauterization, which should extend to the bleeding points; if in the vagina or neck of the uterus, the speculum will be requisite. Chancres exposed to the contact of urine or other irritating substances, take on a bad aspect, become indurated, and, in a manner, interminable. A slight eschar which can be renewed when necessary, in Cullerier's estimation, saves time, as well as proves a most efficient dressing, adhering closely, and producing an ameliora-

tion often otherwise vainly sought for. Some, as Colles and Delpech, prefer the acid nitrate, others the deuto-chloride of mercury; but I would unite my suffrage with those who are in favour of the sulphate of copper and nitrate of silver. Mercurial ointment has sometimes proved useful. Leeches applied to indurated obstinate chancres have been of service; in the neighbourhood, indeed, they would only induce fresh sores. During cicatrization, frequent dressing proves hurtful. Cullerier thinks that a patient who remains well for two months has undergone a solid recovery; secondary symptoms ensuing long afterwards, he would ascribe to fresh infection concealed or dissimulated.

When chancres heal during the exhibition of mercury, it is not easy to say how far this mineral or the spontaneous efforts of nature, respectively, have been instrumental. It was Hunter's opinion that mercury cured the disease by superinducing a new action in the constitution. The leading indications are to promote recovery from local disease, and avert constitutional symptoms; individual cases excepted, however, it would be hard to prove that this substance realized either of them. Astley Cooper ascribed the frequency of secondary symptoms to disuse of mercury; this mineral, however, it is well known, does not secure immunity. They ensued, it appears, in one-third of the cases treated by Rose without it; and in the army reports, by Franklin and McGrigor, rather more frequently without than with; tertiary affections, however, not at all, or very rarely. Fergusson, in five hundred instances, not to mention those occurring in the different regiments of guards, found every form of venereal ulcer, whether superficial, excavated, or sloughing, curable without mercury; secondary symptoms, amounting to one-tenth of the whole, being nearly confined to the first order of parts, in two instances only, affecting the bones, and then removed without the mineral in question. Hennen advised chancre to be treated locally at first, with cleanliness, rest, and abstinence; but if the sore remain open, or prove backward in healing, I would side with him and Bacot as to the propriety of moderate mercurialization. Carmichael gives mercury in alterative doses, when primary sores do not yield to rest, antiphlogistics and astringent washes—when papular and pustular eruptions do not give way to sarsaparilla and antimonials—when iritis occurs, and when nodes with inflammation of the periosteum arise; otherwise, he repudiates its employment. In every form of phagedenic disease, indeed, he has found it a most deceitful remedy. Desruelles is of opinion that simple treatment, with an emollient vegetable regimen, without mercury, is adequate to the cure of venereal. The primitive local affection, whether by caustics, astringents, or antiphlogistics, should be removed with the least delay, thereby affording the best chance of escaping secondary affections. Simple treatment, he conceives, not only exposes the patient to fewer relapses, but when such do occur, they are less serious and more easily remedied than when mercury is resorted to. The mercurial influence, when desired, may be induced by means of calomel, Plummer's pill, mercury with chalk, or blue pill, from two to five grains night and morning, with a little opium, if required, to prevent the medicine from running off by the bowels, and for so many days as may be necessary to induce very slight ptialism, or even only to render the gums sore. Fumigations, which do not answer with children, minute doses of the bichloride of mer-

cury or liquor of Van Swieten, are common on the continent. Ricord, in the Hôpital des Vénériens, began with small doses of mercury, gradually increased according to the capacity of the patient. He raised the dose pretty suddenly afterwards, allowing, say five or six days to elapse, finding that much smaller quantities of the mineral, corrosive sublimate, or the protiodide of mercury, thus suffice. Salivation, or mercurial stomatitis, is unnecessary, since venereal ulcers, those in the mouth especially, do not improve under its influence. When the gums become sore, the mineral should be discontinued, afterwards inspecting the mouth and the state of the skin before resuming it in smaller doses. Mercurial eczema, however, is not common. Inunction with mercurial ointment being inconvenient, and, perhaps, less manageable, is not now so frequently resorted to. The common, and very proper precaution of keeping the surface warm, and of avoiding cold, without carrying it to extremes, is expedient during every method of treatment. Some constitutions are so peculiar that chancre and other forms of syphilis, so far from being benefited, are injured by the administration of mercury; hence, in such, this remedy should be interdicted. Independent of phagedenic ulceration, sore throat, diseases of the bones, mercurial erythema, and iritis, a poisonous effect, by Pearson termed mercurial erethism, sometimes accrues from the ill-directed administration of this powerful agent. Matthias, in a work now before me, has given many illustrations of the combined disastrous results of the syphilitic and mercurial poisons. When chancres become irritable, Astley Cooper advises the discontinuance of mercury; and this, he says, is the great secret of healing the venereal disease. It is neglect of this which produces those sloughing chancres which not unfrequently destroy the penis, if not the life of the subject. Here he would apply poppy-head fomentations and poultices, in the propriety of which Carmichael concurs; forty drops of nitric acid in a quart of water; also the acid nitrate of mercury, which is praised by Colles. Bread and water poultices, and the different balsams, are occasionally expedient; but the same application may not agree more than a few days in succession. Should sloughing ensue early, the specific action of the sore is probably destroyed; and unless the constitution be already affected, the patient, in so far, escapes. Occasionally the prepuce is removed as if circumcision had been performed. Among other shocking examples of the ill effects of mercury, Burridge, in the *Lancet* for 1838, mentions a young man in whom, notwithstanding bark and opium internally, the local application of nitric acid and the nitrate of silver, the glans fell off, phagedenic buboes, leading to false aneurism of the femoral artery, requiring an operation, ensued in the groins, followed by local phlebitis, exposure of the cartilages of the knee-joint, necrosis of the tibia, and fibula, mortification of the foot and ankle, and fatal thoracic disease. Carmichael, also, mentions a young officer who had received the complaint in Lisbon, the septum, alæ, and cartilages of whose nose were destroyed, and in whom phagedenic ulcer of the left leg from the ham to the heel, with destruction of the calf and permanent flexion of the leg, took place.

The remarks which concern the treatment of chancre, apply equally so far as open bubo is concerned. Hunter had an idea that rubbing in mercury, so as to pass through the diseased gland, still preferred by

some practitioners, was best calculated to dissipate the disease; this, as Bacot has shewn, is untenable. Buboës in women, as Gibert has shewn, generally terminate in resolution. In the other sex, I have occasionally promoted this desirable result by means of a smart emetic, with rest, leeches, and warm fomentations to the part. When suppuration ensues, the matter may be evacuated with the aid of the lancet—in which case the puncture should be made in the direction of the greater diameter, caustic, or it may escape spontaneously. When ulceration spreads and the integuments flap over, caustic potash, or the knife will be required. When sinuses form, or when the sore is long in healing, Ricord would fill both with powdered cantharides and dress with dry lint, so as to force healthy granulations. In such cases, he has derived advantage from the internal exhibition of from ten to twenty grains of the protiodide of iron. Graduated compression, so as not to induce pain, according to Ricord, often serves to induce the resolution of bubo, particularly when chancre has not preceded. He affirms that persons who carry a truss do not become affected on the side in which this is worn. Should compression not succeed, or when chancre has not gone before, this practitioner removes the epidermis by means of a small blister, afterwards applying a pledget of lint dipped in a solution of corrosive sublimate, twenty grains to the ounce, or one of the sulphate of copper two or three drachms to the ounce, by which means a small greyish eschar is produced in two or three hours. The part is then dressed with cataplasms dipped in laudanum, which next day are replaced by compresses moistened with Goulard's lotion; and, if necessary, the part being healed and acute inflammation not ensuing, the process is repeated. Here this practitioner has succeeded by destroying a third of the superincumbent skin by lime and potash, and subsequent application of mercurial ointment. Discutient plasters, blisters, and time, with daily exercise in the open air, are beneficial in chronic induration, should it ensue, when the bubo has closed. Once pus has formed, its dispersion otherwise than by evacuation, is difficult or impossible; the tension of the parts, however, sometimes suggests its presence where there is nothing of the kind. If mercury, says Astley Cooper, be continued while bubo is suppurating, sloughing, so soon as ulceration ensues, will follow. In one of two fatal cases which he cites, the femoral artery, vein, and sartorius muscle were laid bare; in the other, the femoral artery being involved, the patient bled to death. Should bubo, observes Colles, become phagedenic, threaten to open the femoral artery, or give rise to constitutional fever and irritation, its further progress can often be almost instantaneously arrested by the strong muriate of antimony; Cooper recommends the nitric acid wash, with which, if the edges alone be touched even, the sore will begin to heal. Pain for half an hour or so, may ensue, after which the patient finds relief and falls asleep, though previously, perhaps, unable to do so with large doses of opium. Carmichael narrates a striking instance of the efficacy of division of the prepuce with the application of nitric acid, followed by a stream of cold water, in a case of phagedenic ulcer of the glans. If symptomatic fever be considerable, he speaks well of general bleeding, with bread and water poultices, to which opium is occasionally added. In all such cases, mercury, even in the event of secondary symptoms, must instantly be discontinued, substituting

opium with carbonate of ammonia, and, so far as the patient will bear it, meat and wine. I have already adverted to the fact of the sloughing process destroying the specific action of the part, and, of course, inducing a radical cure. In other respects, as Cullerier observes, no recovery, whatever be the form of treatment, can be considered certain, short of the sanction of time.

As to the treatment of syphilis by means of guaiacum and sarsaparilla, these, it is probable, display little direct efficacy, but merely act like other sudorific diluents. French practitioners prefer the ptisan of Feltz, consisting of cuttings of sarsa, three ounces; of gum Arabic, half an ounce; sulphuret of antimony, knotted in a cloth suspended so as not to touch the sides of the vessel, four ounces; lastly, six pounds of water boiled to three over a slow fire. Of this, from three to four glasses, daily, may be given during two, four, or six months. The hydriodate of potash in camphor mixture has several advocates, and I have tried it with seeming advantage. Scott ascribes great efficacy to nitro-muriatic baths and lotions, which have occasionally been alleged, a property I never witnessed, to induce pyalism. As Samuel Cooper observes, the most important inference from Scott's practice, is the generally curable nature of syphilis without the aid of mercury. Simple uncomplicated lues, in good constitutions, readily yields. In complicated cases, we should always attack the leading incidents. Regimen is of great importance, and the cura famis alone, when it can be borne, has more than once sufficed for the removal of lues. Colles omits local applications in sore throat, as in primary chancre, the changes which the ulcer undergoes serving to test the deleterious action of mercury on the system. He would keep up, with a view to a radical cure, the mercurial influence eight or ten weeks. Cooper, in opposition to himself, but with great propriety, would assist, by local means, the healing of syphilitic sores wherever they occur. With this intent, the chloride of antimony or other escharotic may be employed accordingly. Should the ulcer heal, however, without removal of the constitutional taint, it will return in the same, or the other tonsil, with similar characters; but it does not, therefore, follow that this recurrence, which Colles, in fact, ascribes to irregular or excessive employment of the mineral, will be prevented by the exhibition of mercury. Secondary venereal ulcers and eruptions on the surface, condilomata, warts, scaldings of the anus and genitals, are best removed by alternate local and general means, baths, mercury in various mild forms, and attention to the general health. Colles admits that syphilitic rupia, so far from being amenable to mercury is often induced by it. Should nurse, or mother and child, respectively, labour under syphilis, mercury, if administered, must be exhibited to each, since its influence through the milk is hardly to be depended on. The treatment of syphilitic iritis demanding local and general depletion, with full mercurialization, will be resumed in the section devoted to ophthalmia. Leeches, rest, and daily mercurial frictions over the scrotum, suffice in syphilitic testicle; if there be no pain, methodical compression as before. The treatment of alopecia and onyxia, in which last case the nail must not be forcibly separated, will depend on circumstances. In tertiary affections in the periostium and bones, Cooper employs blue pill combined with opium, local evaporating lotions, and

stimulating plasters, as the ammoniacal plaster with mercury; Hunter the mercurial ointment. By these means, along with blisters, serous effusion between the periostium and bone, will probably be removed without inflammation. Cutting down on the bone, unless in the event of matter, which must be discharged, is apt to entail exfoliation. Ricord has found one or a succession of blisters in obstinate nodes, to procure the greatest relief; permanent induration, unless inducing great deformity, he would not meddle with. In caries of the face and nose, mercury loses its influence or becomes hurtful. Sometimes one of the maxillary bones, the vomer, or palatine arch, is destroyed, with suppuration and ulceration of the soft parts; here, the carious portions must be removed. Ricord once found the apparatus for lithotrity useful. When an aperture occurs in the roof of the mouth, Cooper fills it with cotton; Weiss has devised a silver plate; while Roux and others have performed an operation, staphyloraphy, similar to that for hare-lip. In other respects, the treatment of affections which may subsist years after the syphilitic virus has exhausted itself, demands much attention to the patient's habits and peculiarities of constitution.

V—ANAPHRODISIA, AGENESIA, STERILITY.

MANKIND naturally manifest much solicitude with regard to the healthiness of the reproductive functions, too often miserably abused. The object of nature in their endowment was the continuance of the species, and the origin of feelings which immediately, or by reflection, promote human happiness. The sexual tendencies require to be kept dormant till the bodily powers prove sufficiently matured for the procreation of offspring, and the mind adequately developed to incur the charge. The reverse only serves to undermine the strength and turn attention from those acquirements to the pursuit of which the interregnum of the passions is so fitly adapted. Morality points to this object, but society does not ensure it. Schools cannot always be secured from the intrusion of corrupted inmates, unprincipled teachers, and servants. *In sehr vielen Fallen, says Naumann, haben Ammen und Kinderwarterinnen das Entstehen der Onanie schon by ganz kleinen Kindern zu verschulden, indem sie dieselben durch Manipulationen an den Genitalien zu beruhigen suchen.* Improper books, pictures, and the occasional habits of social life, eke out the mischief; while the evil practices and imaginings of the day are re-enacted in the night. Evil communications corrupt good manners. The pure and innocent do not always escape the contamination of the demoralized. Even what should prove the sacred rites of religion, by dwelling without disguise on revolting iniquities, taint sometimes, I fear, when they should deter. I have been consulted by those who were reduced to absolute impotence by unrestrained addiction to solitary vice. One such, a teacher, informed me that while a boy at school, he and others used to repair to a secluded spot, and there pursue their fatal addiction. Neither minute doses of lytta, phosphorus, strychnia, steel in quantities, nor the shower-bath, though it braced the shattered health, and restrained

involuntary nocturnal losses, proved of any avail in restoring lost virility. In other cases, obstinate hypochondriasis and general debility were the only, though sufficiently serious results. Well-meaning persons, from Tissot and Gruner down, with the best intentions, have universalized the results which follow from debasing habitudes carried to excess. Such over-drawn pictures only plunge the sufferer into misery and despair, and make him the easy prey of those rapacious vultures who, simulating the garb of faithful professors of our noble art, gorge themselves on the weaknesses of debased humanity.

Nocturnal seminal losses, spermatorrhœa, may ensue from general and local debility, induced by sexual excess, or the mere repletion of a vigorous organization. Rare, however, in one case, as they are frequent and enervating in the other, the tension in which the organization is too often kept, acts on the mind, which being filled with erotic images, reacts on the organization, and so on, in a vicious circle, till at last the slightest cause serves to provoke a morbid crethism. Hence, as Lallemand, in his treatise *Des pertes seminales involontaires*, remarks, it comes when least expected, and when it cannot even be averted, constituting, in some cases, a sort of spermatic diabetes. This writer conceives that spermatorrhœa, more probably, however, prostatic emission, is frequent in chronic affections of the urinary organs, and more especially towards the close of the urinary discharge. In ordinary cases, the animal orgasm usually ensues in the early morning, and the individual awakes. The evacuation is not so weakening as the sexual erethism which precedes and accompanies it. *Immoderata seminis profusio*, observes Gaubius, § 562, *non solum utilissimi humoris jactura, sed ipso etiam motu convulsivo, quo emittitur, frequentius repetito imprimis lædit*. This is proved by the debilitating effects of masturbation, in either sex, before or after puberty. Among the disastrous results of sexual excess, though not always to be ascribed to it, is what is termed *tabes dorsalis* or *dorsualis*, marked by pain and debility in the lumbar region, creeping and shivering down the spine, sometimes followed or accompanied by hemiplegia or paraplegia. The patient cannot go to stool without experiencing seminal losses; emaciation takes place; the extremities grow cold and œdematous, and the individual perishes in the last degree of exhaustion. It has been adverted to by writers, as Hippocrates and Aretæus, from the earliest times. Here, it has been asserted that the cauda equina loses from half to two-thirds of its circumference; while Horn, Otto, and Autenrieth affirm that higher up the spinal marrow becomes soft and atrophous. I met male hysteria in one case, and in another periodical convulsions, from sexual excess. In some few instances, the desire becomes so imperious as to constitute a formidable disease, named, according to the sex, *satyriasis*, or *nymphomania*. *Erotomania*, the more suitable designation, seems to arise from a kind of mental depravation. It has been known, as related by Foderé, to accrue from punctures in the genitals; from phosphorus; from lytta, of which extraordinary instances are mentioned by Chabrol; lastly, blows on the cerebellum, as adverted to by Gall and others. According to Esquirol and Calmeil, it is frequent among the insane.

A rigid, but silent, and as it were, unobservant censorship ought to be maintained over the young. Parents should be cautious to whom

they commit their children, or with whom, by night or day, they allow them to associate. Youth is a jewel of which the purity once sullied is hardly to be restored. Instances to which I feel unwilling more distinctly to allude, would drive, could they be narrated, this matter fully home. Children, so far as may be, should sleep in airy, well-ventilated apartments, and singly occupy a mattress, with light warm blankets and counterpane, without curtains. Daily healthful fatigue in the open air ought to precede the night's repose. It is surely better to repress than to cure, to anticipate than to remedy. Should baleful habits be contracted, they must at once and for ever be relinquished; all impure ideas, habits, and companionship should be left off. The bed cannot be too hard, the covering too light, the food too sparing, or the muscular efforts, whether gymnastic or otherwise, too continuous, to realize so desirable an end. Unless pulmonary disease, or the season oppose, let a cold, at least a tepid shower-bath—a measure equally efficient in remedying nocturnal pollutions, be taken early every morning. Here I have found a blister to the perineum of service. Sthenic cases are easily remedied; asthenic, however, require treatment adjusted to the impaired constitution. The one will bear a spare diet and regimen, but the other requires nutriment and moderate stimuli. Aphrodisiaes, so termed, lytta, opium, and the rest, are but poisons; continence and sobriety are the best restoratives. Mild, enlightened, and firm repression, when it can be practised, is best for all cases, whether in young or old.

Sterility is mostly confined to the rich. Individuals able to consummate the generative act, may yet be childless; physical obstacles and congenital defect are less frequent in the female than the male; in other respects, however, barrenness may lie as much at the door of one sex as the other. I have been consulted in one instance of hypospadia, the spermatic fluid being discharged through a fistulous opening in the urethra before it reached its legitimate outlet: I have also met an example of congenital retention of the testicles, one of which, however, occasionally descended through the inguinal ring. As it is possible that these organs may be absent altogether, it is necessary to observe whether hair be developed, and whether the usual changes ensue in the voice. Prostitutes are commonly childless, proving the deteriorating influence of promiscuous intercourse. Men whose powers have been broken down and impaired in a thousand arms, can hardly hope to perpetuate their race; or, if they do, it is after a spurious and degenerate fashion. It has been asserted, that the spermatic fluid of barren men was destitute of animalcula; I should not, however, be inclined to regard these as the human germ. Further researches on the inferior animals might throw light on the subject. A latent incompatibility sometimes subsists; and it has happened, in cases of divorce, that parties, before childless, have respectively become parents. It is remarkable, that habitual excess in eating and drinking proves adverse to fertility; and such, I take it, is the principal source of the sterility of the rich; this has even been observed in the inferior animals. Habitual plethora seems to indispose to fruitfulness; while poor people, with a bare sufficiency, if even that, have houses swarming with offspring. The prolific tendencies of the Irish are well-known: barren marriages are rare among them. Fish-eaters, ichthyophagi, who have to

work hard, and live without excess, are proverbially fruitful. Hence it is that the reproductive tendencies of a people—a problem vainly attempted by Malthus and others, is in the inverse ratio of their comforts, and not merely of their numbers, as conjectured by Sadler. Hence, also, the poorer and more wretched a population, within certain limits, the more prone to increase. In other respects, the poor follow, but do not precede the promptings of nature. The rapidity with which the void left by famine, war, and epidemics, fills up, has been frequent matter of observation, and is readily enough explained by the increased facilities of subsistence and consequent inducements to marriage among survivors. In two or three instances, by enjoining separate apartments for a time, simple sparing regimen, the shower-bath, and exercise in the open air, I have reason to believe that the wishes of parents, previously childless, were successfully promoted.

VI—METRITIS, PUERPERAL FEVER.

THIS terrible complaint, on which the researches of Dance, Lee, Tonnellé, Duplay, and others, have thrown considerable light, is commonly rare. As to the therapeutics, in hospitals more especially, little, it is to be regretted, has been added. Much confusion, as regards the pathology, has arisen from the variety of textures, as the uterus itself, uterine veins, and peritoneal investment, implicated. A woman, as Cruveilhier remarks, recently confined—what from fatigue, suffering, mental emotion, and the gaping orifices of the utero-placental veins after labour filled with clots, is prone to disease. If any thing, therefore, occur to induce diffused, in place of local phlebitis, we have uterine phlebitis and puerperal fever. The distinction between common and specific inflammation would seem further appropriate, inasmuch as the disease, occasionally, ensues from contagion. Milk fever, so named, Cruveilhier refers to traumatic irritation, connected with the solution of continuity over the placental-uterine surface. Inflammation may be confined to the cotyledons or mamellar surface, corresponding with the insertion of the placenta, or invade the uterine, ovarian, and iliac veins. When adhesive phlebitis extends to the external iliac and crural veins, we have what is termed phlegmasia alba dolens. Adhesive phlebitis of the veins of the uterus, those which run along its margin, and the hypogastric veins, is attended with hypogastric and pelvic pains, which simulate incipient peritonitis. These, however, as observed before, yield to reiterated leeching, baths of three or four hours' duration, uterine injections, and gentle aperients.

It appears from the testimony of all observers, that peritonitis is much more frequent than mere metritis; and that even when the latter ensues, puerperal peritonitis, as Chomel observes, is commonly conjoined. Direct injuries, even, seem more productive of one than the other. In a case by Dance, an old hag thrust a needle into the uterus of a girl four months gone, so as to wound the fundus. Syncope and death followed; and, on examination, floccular effusion was discovered in the cavity of the peritoneum, with a little reddening of the viscera, referable to pregnancy rather than any morbid condition—*qu' à un état*

maladif. Boivin and Dugès speak of simple, acute, and puerperal metritis, subacute metritis, and metritis with induration, ulceration, granulations of the os tinæ, and mucous discharge. These writers further divide metro-peritonitis into simple inflammatory, with a hard, full pulse, cephalalgia, occasional delirium, pain, swelling, and local tension, vomiting, and speedy death; or, it may be with considerable adynamia or prostration, running on for a fortnight or three weeks: secondly, typhoid metritis, the preceding symptoms being complicated with involuntary evacuations, often fetid fuliginous tongue and teeth, stupor, cold sweats, small, miserable pulse, decomposition of the features, subsultus, and death. In six hundred and eighty-six cases, which they cite, some of them but a few hours in duration, thirty only presented typhoid symptoms; pus, however, was detected in the uterine veins of two hundred and twenty-four out of three hundred and twelve fatal cases. Those which I witnessed in the Dublin Lying-in Hospital were most rapid in their progress. Denman and Blundell advert to instances in which women died within twenty-four hours after the first attack; and the former has seen some who never grew warm after the first rigor, which then resembled a convulsion. Evidences of irritability and inflammation continue a few days, then those of putridity, so termed; namely, sordes about the teeth and lips, singultus, petechiæ, vibices, and involuntary, fetid, yeasty, sometimes scybalous stools. In some instances, the disease seems to form before delivery or during labour; Haighton relates a case in which it ensued ten days after parturition. The initiatory rigor commonly takes place about the third or fourth day. Denman, condemning tight bandages and hasty separation of the placenta, says the disease is less frequent after difficult labours, because of the greater care then taken. He dreads a weak small pulse from the beginning, also the formation of dusky red tumours on the knuckles, wrists, or other joints; but patients, such is the insidious nature of this cruel complaint, may go off suddenly, the indications being no ways proportioned to the danger. Too frequently, says Blundell, the extremities grow cool, the pains nearly cease, the mind becomes tranquil and full of hope, yet the pulse will be one hundred and fifty or sixty, while the vital powers are fast hurrying on to death. Abdominal subsidence, with copious stools and moist surface, are well; but, if the former ensue without the latter, it is only indicative of danger.

Puerperal fever is sporadic or epidemic. It is most common in towns, as Paris, Vienna, Dublin, London, Sunderland, Leeds, Aberdeen, and in such has been known to restrict itself to the wards of a particular hospital. Gooch esteems it a remarkable circumstance that this disease should be so much more prevalent in some seasons than others. In populous towns and districts, it may appear at any time; and a lying-in hospital, where the office of physician is almost a sinecure, may so abound with cases, as to entail great labour and anxiety. It is most dangerous where most prevalent. Sometimes the disease is confined to the practice of a given individual. The mortality, often truly appalling, may amount to one half, or even three fourths of those affected. Instances are furnished in which it was otherwise; but cases, such as those described by Lee, with diffused abdominal pain, soft rapid pulse, and mere uterine or peritoneal irritation, without inflammation and without danger, have doubtless been often mistaken for those of puer-

peral fever. The mortality in hospitals is always more considerable than elsewhere. During two years spent by Dugès in the Maternité, from 1819 to 1820, out of six hundred and eighty-six cases, three hundred and twelve died. In twenty-six of simple metritis, thirteen proved fatal. William Hunter stated in his lectures, that three out of four perished, no matter how they were treated.

In the Dublin cases I witnessed serous effusion, with floccular masses of coagulable lymph in the cavity of the peritoneum. Serum, sometimes of a straw colour, sometimes purulent, occasionally bloody and glutinous, was invariably discovered by Collins. In seven of his cases, similar effusion ensued in the thoracic cavities. The peritoneum was vascular; in a few instances the fluid was scanty, and the intestines were glued together. He affirms that the uterus was usually natural, but admits, that it was sometimes soft and flabby, matter being discovered in the sinuses. The ovaries, however, were often enlarged and so soft as to break down on the least pressure, an occurrence to which occasional after sterility, has been ascribed. Out of fifty-six fatal cases observed by Lee in the British Lying-in Hospital, inflammation in the uterus, its veins, absorbents, or appendages, was discovered forty-four times; in the peritoneum and uterine appendages, thirty two times; uterine phlebitis in twenty-four; inflammation, and softening of the muscular tissue of the uterus in ten; and pus in the absorbents in four. Dr. John Clark discovered pus in the veins of the uterus; and, in some cases, inflammation of the pleura, lungs, and pericardium. Boivin and Dugès mention effusion into the pleura and pericardium; and relate seven or eight instances of women, apparently convalescent after puerperal fever, dying of pleuro-pneumonia, purulent foci being afterwards discovered in the walls and lateral veins of the uterus. Cruveilhier does not esteem local phlebitis as necessarily either dangerous or incurable; Duplay, indeed, has witnessed obliteration, doubtless the result of inflammation in the uterine veins. Boivin and Dugès assert the extension of inflammation, for the most part to the peritoneum and uterus, with softening, circumscribed abscesses, and inflamed veins. The internal surface alone may be inflamed with layers of coagulable lymph or pus; and we may even, they allege, have gangrene. In all these cases, the pus, whether exhaled by the cavity, the surface, or the tissue of the organ, may be absorbed by the veins and lymphatics, and enter, with imminent danger to the patient, into the circulation. Higginbottom and Marshall Hall observed destructive inflammation of the eye; but its connexion with puerperal phlebitis, they had no opportunity of ascertaining by dissection.

Dugès and Tonnellé, as regards puerperal metritis, are opposed to the doctrine of contagion; Hulme maintained that it was not more so than pleuritis. In the Dublin Lying-in Hospital, however, case after case would ensue in a particular ward, and continue to do so till the beds were taken out, and the floors and walls submitted to a complete lustration. Here, it is morally certain that the disease would not have ensued had patients not come within the precincts; in fact, puerperal fever is the scourge of such institutions, and its prevalence goes far to neutralize their utility. A practitioner, says Gooch, who opened the body of a woman who died of puerperal fever, continued to wear the same clothes. A lady, whom he delivered a few days after, was at-

tacked with, and died of a similar disease; also two others in rapid succession. Struck with the occurrence, he changed his clothes, and experienced nothing more of the same kind. A nurse washed the linen of one who died of puerperal fever; the next she attended died of the complaint, and the next, till the people, alarmed, ceased to employ her. It has long been suspected, and now fully proved, says Denman, that puerperal fever may be conveyed by nurses and midwives from one patient to another; a fact that explains the occurrence of a series of unfortunate cases in the hands of persons who have practised for years with enviable success. Of predisposing causes, the most important, doubtless, is the puerperal condition itself. It holds true, observes Blundell, that puerperal fever never attacks women unless prepared for it by the birth of the ovum. There is too much reason, says Denman, to lament rough treatment of the os uteri, violent or hasty separation of the placenta, and other circumstances capable of inducing local inflammation and fever. It is natural for women, especially with their first children, to have slow and painful labours, which they will generally bear with resolution, and, if not hurried or mismanaged, without danger. Harvey lashes those, who, when the patient is crying for help, lest they should appear ignorant, or not enough of the midwife—*ne imperitæ vel parum satagentes videantur*, oil the hand, distend the female parts, make a wonderful and useless fuss, retarding and perverting the labour, rendering it unnatural as well as difficult. Boivin and Dugès affirm, that it is a bare possibility for metro-peritonitis to occur during pregnancy; and quote authors to shew that chronic inflammation and softening, going on for months before, of which they relate two instances, may induce rupture of the uterus, during, or shortly after, the act of parturition. These, they also conjecture, may prove a possible source of abortion. Retained placenta is enumerated as a cause of metro-peritonitis; Nägele, however, mentions an instance in which, as he alleges, it was in a manner dissolved and absorbed without any such result. Some are full of the danger of introducing the hand after labour, in order to occasion contraction of the uterus. Cruveilhier signalizes the ill effects of awkward interference, lacerations, and cold injections, in order to restrain hemorrhage. Boivin and Dugès, without attaching much importance to prolonged and difficult labours, conceive that they are among the causes of the greater frequency of metro-peritonitis after first labours. They admit, with De la Roche, that cold and moisture may prove exciting causes; yet the precautions employed to neutralize both, at the Maternité, neither lessened the number of cases nor the mortality. Suppression of the lochia, or of the milk, is hardly to be esteemed an occasion, since these secretions are often interrupted without any such result.

In treatment of puerperal fever, so named, remedies of every kind too often prove useless; and I have seen patients sink without an attempt at rally, though means the most energetic, and attention the most unsparing had been resorted to. Gooch, however, in one place asserts, that, provided he saw the patient early, he could generally arrest the disease. He would bleed from a wide orifice, the head being raised, and blood allowed to flow till the patient felt faint. So soon as the woman rallied, he would give from ten to twenty grains of calomel in a little arrow-root, afterwards half an ounce of the sulphate of mag-

nesia, in beef tea or thin gruel, every other hour till copious evacuations were produced; applying, at the same time, from ten to twenty leeches to the tender abdomen, and, when they had fallen off, a bag stuffed with a poultice or scalded bran an inch thick, laid on hot, and renewed, so as to keep up the moisture and encourage the hemorrhage. Bleeding, along with purging, is the sheet-anchor; and if not oftener successful, it is probably, as Denman observes, from not being early enough resorted to. He was long doubtful as to its general propriety; but adds, that manifold experience convinced him that his fears were groundless, and that what he considered proofs of its insufficiency, ought in reality to be ascribed to neglect of its performance. As to the quantity to be taken away, and frequency of the operation, this veteran practitioner would have us governed by circumstances. Sometimes spontaneous hemorrhage proves critical; and Denman relates an example in which fever, followed by hemorrhage, ensued some days after forcible separation of the placenta, with recovery. Richter of Göttingen employed repeated purging till the symptoms ceased; and affirms, that he had often witnessed child-bed fever, and always treated it successfully. When Gordon of Aberdeen only took away twelve ounces, the patient died; but if four and twenty were abstracted within the first six hours, she generally recovered. The bleeding was followed by three grains of calomel, two scruples of jalap, a daily aperient, and nightly opiate. For all this, thirty died out of seventy; yet, as Goode observes, when his practice had fair play, it was more successful. He was not deterred by a weak feeble pulse at the beginning, as after bleeding it became fuller and stronger than before. Hey of Leeds, omitting the opiate, followed the same treatment with advantageous results. Lowder affirms that every one died who was bled; Armstrong, every one who was not bled. In fact, unless at the commencement, bleeding is useless; and Burns states, that the lancet is only admissible at first, and, if not followed by decided benefit, should not be again resorted to. Doucet of Paris, in 1782, was successful, it is alleged, with seven-grain doses of ipecacuanha, so as to induce vomiting and purging, followed by two ounces of almond oil, one of the syrup of mallows, and two grains kermes mineral. Boer of Vienna, in his *Beobachtungen über das Kindbettfieber*, boasts the efficacy of antimonials. Mercury has not been extensively tried; Blundell, in one instance, brought the system under its influence, but the disease ran its fatal course. When pus, as in instances recorded by Danes and Tonnellé, finds its way into the circulation, mercury, like other means, will prove sadly unavailing. The latter of these writers, however, as well as Velpeau, after local bleeding, recommends two drachms of strong mercurial ointment, to be rubbed in, every two hours, till its influence be experienced in the mouth. Lee exhibits ten grains of calomel in combination with ten of Dover's powder, every three or four hours, till the symptoms begin to abate. Upwards of fifty grains of the former have, in many cases, been given with decided benefit; and in two only, of one hundred and fifty-six patients, was the mouth severely affected. It produced neither vomiting, gastric irritability, general weakness, nor abdominal tympany. Brenan has brought turpentine before the notice of the profession; and it has been represented, that half an ounce twice a day, with a soaked cloth applied to the belly, will remedy the worst forms of puerperal fever.

Payne is an advocate, but Lee is opposed; and the statements of Douglas and others are not uniform. Joseph Clarke mentions, that in twenty trials, not one patient recovered. Along with eastor oil, it proves a good purgative, but is not exclusively to be depended on. Warm, or preferably, hip baths, also injections by means of an Indian-rubber canula, into the vagina and uterus, have been strongly recommended. Blisters inside the thighs and legs have been found useful. In the event of gastric irritability, Lee considers an ounce every two hours, of a mixture composed of a drachm of the subcarbonate of potash, in five ounces of the aqua menthæ viridis, preferable to saline or effervescent draughts. In fine, it is of the last importance, by means of early venesection and copious purging, to anticipate, if possible, changes of structure incompatible with the continuance of life. The disease, as Ferguson in his work on the subject, and Shurnam in his cases in the Medical Gazette for 1840, remark, is sometimes fatally protracted, even to a fatal termination, and demands such nourishment and stimuli as debility and prostration indicate.

VII—CANCER, CARCINOMA OF THE UTERUS.

As cancer of the lips and testicle affects the male, so cancer of the mammae and uterus afflicts the female. Scirrhus pylorus may prove the concomitant of either. Uterine cancer, as Cayol and Bayle observe in their monograph, originally published in the *Dictionnaire des Sciences Médicales*, and now in Cayol's clinique, lying before me, may supervene at any period, from twenty to decrepitude. It is most common between forty and fifty, but after sixty is rarely met with. Out of four hundred and nine cases, twelve occurred before twenty, eighty-three from twenty to thirty, one hundred and two from thirty to forty, two hundred and one from forty to fifty, seven from fifty to sixty, and four from sixty to seventy-one. No reasonable cause, save a vague predisposition, hereditary, or otherwise, can be assigned. We have witnessed, say the foregoing writers, women die of cancer who had been addicted to the most abandoned license, as well as young persons in whom the hymen was intact; mothers of many children, and those who never had been pregnant. The cervix uteri is the part usually first implicated; but Waller attended a case, and Travers, Breschet, and Ferrus mention others, in which the disease commenced in the body of the uterus. Siebold asserts, that the uterus may labour under fungus hematodes, but not medullary sarcoma; this, however, is a distinction without a difference. Blundell is of opinion that it begins in the mucous follicles, sometimes termed the glandulæ or ova Nabothi, of the os and neck. Waller, as well as Bayle and Cayol, Levret, Siebold, Kilian, and Burdach, relate instances in which, not only was the menstrual discharge regular, but the subjects became pregnant, ran their full time, were delivered, and afterwards died. Ἡν σκιστῶσθωσιν αἱ μήτραι, says Hippocrates, τό τε στόμα τερχύ γίνεται καὶ τα ἐμμήνια κρύπτεται. It might be supposed that sexual desire should become extinct, but, doubtless, from some morbid cause, it has been observed even greater than natural. The stomach sympathizes, and we have vomiting, flatulence, and heart-

burn. Local discharge, if any, the patient refers to leucorrhœa. The mammae swell sympathetically, with various painful affections of the lower extremities, which Heming has twenty times seen ascribed to rheumatism or sciatica. Sometimes the long bones become so affected as to fracture from mere muscular effort or trifling outward violence. On examination, whether with the finger or speculum, a distinct, hard swelling will be found to implicate the os and cervix uteri, with perhaps fungoid ulceration or sloughing growths filling the vagina, and bleeding on the slightest touch. Acute lancinating pains, perhaps swelling of the inguinal glands, with copious, fetid, purulent, sanious, or bloody discharges, difficult stools and micturation, are experienced. *Dolor gravativus circa inguina*, says Hoffmann, *abdomen imum ventrem ac lumbos, intermixtus per intervalla lancinantibus doloribus*. The surface becomes wan and earthy, the skin stretched on the bones, while the disease perhaps involves the vagina, bladder, and rectum, in one common mass of destruction; and the unhappy sufferer, worn out by pain, hectic, and consuming anxiety, is relieved by death at last. Intervals, however, whether naturally occurring, or through the instrumentality of opium, ensue, during the earlier stages at least, in which the patient enjoys comparative immunity, is cheerful, and even gay. Indeed, Velpeau and other French writers relate instances in which the disease had made frightful progress before its existence was hardly suspected. Lisfranc has seen women, previously fat and ruddy, in the course of seven or eight days, become yellow, and, as it were, melt away. He relates the striking instance of a married lady, young, fresh, and captivating, one of the handsomest in Paris, whom he examined at the instance of professor Moreau. The uterus, completely disorganized, offered no resistance to the finger, which sank in the fetid mass, *bourbier fétide*. The family thought but little of the practitioners and their predictions, but, in a few months, the patient was no more. Nothing, Berard remarks, is less uncommon than the concurrence of encephaloid masses in the liver, kidneys, cellular tissue, lymphatic ganglions, lungs, and skin. Cancerous matter, whether by extension of the disease, or absorption, has been known to find its way into the veins—the cava for example. Uterine cancer may last from half a year to four or five years; I saw it proceed in a poor washerwoman to a fatal conclusion in six months. Bayle and Cayol witnessed instances in which the appetite was not deranged till shortly before death, though the neck of the uterus had become a mass of putrilage. The menstrual discharge comes and goes, perhaps with menorrhagic violence, before it ceases. Sometimes there is prolapsus, a frequent result of organic disease, but which Lisfranc does not ascribe to relaxation of the ligaments.

There are certain affections of the neck and body of the uterus, analogous to, or distinct from cancer, the proper discrimination of which is a source of much anxiety. The cancerous ulcer is described by Balbirnie as irregular, ill-defined, knotty, and unequal; moreover, covered with livid granulations, readily perceived by the finger, whose pressure induces the issue of a fetid cerebriform sanies. Cancer of the uterus, unlike that of the breast, proceeds from the exterior inward. The French designate cancerous ulceration, for which syphilitic and other ulcers must not be mistaken, by the epithet *terebrant* or *boring*. Simple ulceration, nineteen cases out of twenty, according to Ricord, seated

in the *os tincæ*, may be attended with copious leucorrhœa. It sometimes ends in destruction of the organ. Scrofulous ulcers with cheesy, curdy discharge, and absence of pain, result, according to Lisfranc, from softening and discharge of tubercle. Here, cauterization and other means readily induce cicatrization; whereas cancerous ulcers destroy the organ and the patient. The term tubercle, however, has been applied to indolent fleshy tumours, perhaps becoming cartilaginous or bony, which never ulcerate. Waller speaks of malignant ulceration without lancinating pains, but attended with a scalding sensation, ichorous sanguineous discharge, and sallow surface, succeeded by emaciation and death. Tuberos or scirrhus cancer, according to Boivin and Dugès, occasionally terminates in fungoid ulceration, perhaps assuming the hematomatous or bleeding form. Encephaloma sometimes proves fatal before complete softening. According to Bayle and Cayol, cancer of the cervix is primarily similar to *noli me tangere* of the surface. Boivin and Dugès speak of vesicular fungus like a bunch of white currants, with serous discharge, and cancerous tumours with narrow pedicles. Vegetations, which they and Levret term *vivaces*, springing from the inner surface of the uterus, sometimes the *os tincæ*, appear identical with cauliflower excrescences, and which Gooch, who met with them in a young woman who died of cancerous mamma, esteems neither more nor less than fungus hematodes. Cauliflower excrescence increases rapidly, particularly in married women, in whom the vagina is more dilatable, with watery serous discharge, and Mansfield Clarke avers, unattended with pain. This writer has observed the abdominal muscles in fatal cases covered with fat, whereas, in those who die of ulcerating carcinoma, there is scarcely a bone of which the forms and processes may not be traced. Much, however, will obviously depend on the duration of the case.

Leucorrhœa or whites, when fetid and coincident with menstrual derangement, as Bayle and Cayol remark, may simulate the discharge from cancer. Touch, in such cases, does not always enable us discriminate, since in some women the orifice of the uterus is flabby, irregular, and voluminous. Lallemand describes certain elongations of the neck, sometimes termed prolapsus, which, as also chronic metritis, so named, if accompanied with fetid uterine catarrh, are liable to be mistaken for cancer. Chronic uterine engorgement, what from its obstinacy, what from the facility of relapse, is sufficiently serious. Granular inflammation of the *os*, a rare affection, according to Boivin and Dugès, presents reddish or whitish granules, varying in size from a millet-seed to a pea. Duparcque mentions a girl who experienced instant menstrual suppression, with pain and shivering, after a wetting. Subsequently the breasts became enlarged, then flaccid, the body wasted, and the patient, especially when erect, experienced unsupportable weight and tension. Venesection, to the amount of sixteen ounces, and the warm bath, were followed by speedy amendment, preceded, however, by the evacuation of dark blood and excessive uterine tenesmus. A young Jewess on the eve of the catamenia, being frightened by noise in an adjoining apartment, complained of coldness, shivering, and intense pains in the lower belly. The uterus was large as that of a person three and a half months gone, the skin dry and burning, with parched mouth and loaded tongue. The abstraction of sixteen ounces of blood

from the arm, and the removal, with the handle of a spoon, of indurated stercoraceous matters from the rectum, castor oil, leeches to the hypogastrium, and the warm bath, reduced the uterus to its normal dimensions, and reinduced the menstrual discharge. Some of the cases were attended with hysteria, bloody or serous evacuations, and prolapsus, with weight, tension, and general ill health. Low diet, diluents, general, not hip baths, emollient injections, venesection, repeated leeching through a speculum, of the neck of the uterus, the recumbent posture, and absolute rest, if they did not effect a cure, invariably induced relief. These means, with tartar emetic injections into the vagina, and country air, restored perfect health in a case of ulceration and engorgement of the neck, which Dupuytren and another pronounced one of cancerous ulcer, and ablation the only remedy. They proved equally so in a second, wherein the uterus, after suppressed lochia, had gained the size of a goose-egg, with dragging pain in the hips and fundament. Twelve leeches had been applied to the neck, and, contrary to what usually happens, caused such hemorrhage as to call for the plug. The uterus, however, rapidly diminished in size, and the patient became pregnant. Engorgement of twelve, also of six years' standing, the latter with prolapsus filling the vagina, and abundant leucorrhœa, though termed incurable scirrhus by a celebrated practitioner, was not only removed, after general and repeated topical bleeding, three cups of gruel diluted with milk, daily, for food, the recumbent posture, the pelvis being elevated with a hard cushion, but the patient became pregnant. Tealier and Lisfranc, I may mention, treated ulceration of the neck successfully, by means of pledgets of lint dipped in the acid solution of the proto-nitrate of mercury. The only parallel in my own experience which I am able to adduce, and which I would refer to inflammation of the lining membrane, occurred in a poor work-woman. On examination, the uterus felt fully larger than a goose-egg, the menses were suppressed, the skin hot, the pulse small and quick, with great wasting. After some months, the uterine outlet spontaneously yielded, giving issue to a copious gush of purulent matter, after which the viscus regained its dimensions and the patient her health. Purulent deposits in the uterus—*ἀπόστημα ἐν μήτρᾳ*, whether in its cavity or the walls, though rare, have been adverted to by the earliest writers; subsequently by Hildanus, Van Swieten, Hoffmann, and others. A very singular case, in which a pint and half of green, stinking purulent matter escaped by rupture into the cavity of the peritoneum, is related in the five and twentieth volume of Froriep's *Notizen*.

Prolapsus or procidentia of the uterus, is a not unfrequent complication, often the result of organic or functional disease. Inverted uterus is rarer than polypus, which it closely resembles, and for which it has often been mistaken. Both are alike distinguished from prolapsus by the circumstance that in the latter the tumour, at its most depending part, has a palpable orifice, into which a bougie can be passed. Inverted or prolapsed uterus is sensitivo, whereas polypus is otherwise. Prolapsus, however, in rare cases, may subsist along with inversion, and in ordinary uterine prolapsus, there is always more or less inversion of the vagina. A patient which Gooch had seen in conjunction with Drs. Clarke and Davies, was freed, with some degree of violence, from the placenta, after which a tumour projected into the vagina.

followed by hemorrhage that bleached the face. Although there was some suspicion of inversion, a ligature, previous reduction having failed, was applied and tightened every other day. Large opiates were given to dull the pain, and on the fourteenth day, the tumour, in the hollow of which the Fallopian tubes could be seen, came away! William Hunter tied the inverted uterus in a girl, with fatal consequences: cases occurring in virgins are further related by Mauriceau and Heymann. In ligature for polypus, a portion of the uterus is sometimes included. Two women whom Gooch and Denman operated on, perished from this cause, intense pain coming on, the latter relates, whenever the cord was tightened; and Abernethy mentions having opened several who died after ligature. Every degree of procidentia, says Mansfield Clarke, may be met with, from that in which the os uteri descends a little lower than its natural situation, to that in which, perhaps months or years afterwards, the uterus projects through the external parts, dragging with it the vagina, bladder, meatus urinarius, and even the ovaries, Fallopian tubes, and small intestines, forming a tumour the size of a melon. Boehmer mentions an instance in which the tumour, large as the head of a fetus, *instar capitis foetus*, was not discovered till after death; and Siebold describes complete prolapsus of eighteen years' standing. Thus when the meatus descends, if we would pass a catheter, it must be turned towards the knees of the patient. The rectum, in place of its usual sweep, first dips into the posterior part of the tumour. Instances of prolapsus during pregnancy, which, it must be confessed, is very rare, are recorded by authors. In chronic cases, the mucous membrane may assume a sort of cutaneous conversion; at other times ulceration ensues. In a distressing case which I witnessed in a poor woman, the prolapsed uterus had all the aspect of a piece of raw flesh. Persons thus affected, as Saviard and others relate, have sometimes been looked on as hermaphrodites. Pains in the back, loins, and groins, mark this affection, which is further attended with strangury, and a transparent mucous, sometimes purulent discharge; symptoms, however, which, as Sauvages remarks, are greatly mitigated by the recumbent posture—*horizontali decubitu sensim evanescunt*. Pessaries introduced for the relief of prolapsus, suffered, strange to say, to remain untouched for years, have sometimes been mistaken for scirrhus, which, in very rare cases, has been known to ensue.

The same error has occurred with regard to polypi which occasionally undergo a similar conversion. I do not believe, says Gooch, that any man can tell infallibly by touch whether a tumour in the vagina be malignant or benign: a rough surface is no criterion. This practitioner has removed tumours successfully, which, according to this test, would have been pronounced malignant. Polypi are attended by more or less menstrual derangement, leucorrhœa, and hemorrhagic discharges. Most common in married women, they occasionally occur, as Bartholinus observes, in maidens. Bayle goes so far as to assert the existence in twenty out of every hundred women, of the small fibrous bodies which are the origin of polypi. Their concomitance with pregnancy is a well-known and much-dreaded complication. They are sometimes not larger than a nut, so that we hardly believe they can prove the source of such frequent hemorrhages; yet these cease on the removal of the polypus, of which an instance is related, after merely using a

syringe. They sometimes, however, escape spontaneously. They may be large as a child's head, and, as Gaultier de Claubry avers, even larger. Fibrous in structure, and generally globular or pyriform, they may be cylindrical; and Gooch mentions a woman subject to frequent hemorrhage, in whom a soft flat tumour, six inches long and half an inch thick, protruded from the vagina. There was some uncertainty, but a ligature being applied just below the neck of the uterus, the tumour, in the course of a few days, fell off, and the hemorrhage ceased. When polypi grow with a thick stalk from one lip of the uterus, the other lip and orifice are not to be detected, so that practitioners are puzzled. Hemorrhage, also, may subsist while the tumour is in the uterus, and until it descend, the nature of the case may be overlooked or mistaken. Sometimes polypi undergo spontaneous softening, and unless relieved by an operation, the patient may sink from the profusely fetid hemorrhagic discharge. Lisfranc prefers torsion, otherwise excision, for their removal. Partial excision has been known to induce decay of the remaining portions. Ligatures have proved very successful in the hands of Gooch and others. Lisfranc, in his *Leçons de Clinique*, mentions a woman, yellow and emaciated, who had experienced sero-sanguinolent discharges for years. The finger readily entered a pulpy bleeding mass, which some said was cancer, but which Lisfranc successfully removed by scratching till he arrived at the sound walls of the uterus, and therefore concluded was polypus. The uterus is further liable to retroversion, less frequently anteversion and obliquity, dropsy, hydrometra, tympany or physometra, and hydatids. Aetius, or rather Aspasia, as cited by him, has adverted to physometra with escape of flatus sensible to the patient; and many cases have been recorded by Zacutus Lusitanus, Sennertus, and later writers. Hydatids have been frequently described. I met an instance in which these vesicular bodies were discharged from the uterus, and I have seen them attached like bunches of grapes to the peritoneal covering.

The investigation of uterine disease, of late years zealously prosecuted, has induced a corresponding advance in the diagnosis. If the coloured plates in Boivin and Dugès' atlas be the counterpart of the morbid states which they profess to represent, as they doubtless are, it will go far to corroborate my assertion. The natural reluctance of the sex, in some only to be overcome by dread of death or mortal disease, leaves it, perhaps, to be regretted that we have no practitioners of the class and acquirements of a Lachapelle or Boivin. The influence of the organs of generation, says Mansfield Clarke, is so considerable, human health and happiness so connected with their well-being, that the anxiety felt respecting them excites no surprise. Diseases of these parts can only be known by examination, which, in such cases, should always be proposed and performed. And it is no small compensation to a woman who conceives herself to labour under some fatal complaint, to be assured, though at some expense to her feelings, that such has no existence. It is notorious, further adds this excellent practitioner, that many prescribe for diseases of the sexual organs from the history of the symptoms. How many discharges, caused by chronic uterine engorgement, observes Imbert, in his *Traité Theorique et Pratique des Maladies des Femmes*, have been treated by injections and remedies of every species, while the primary disease became gradually incurable:

the rational signs, almost always insufficient, being too generally confided in. Information is afforded by the joint assistance of sight and touch. The hand may be passed directly over the abdominal surface, the patient's thighs being flexed, and charges given not to contract the muscles of the lower belly. Applied immediately below the umbilicus, and the intestines thrust aside, some idea of the nature and locality of any existent tumour will thereby be gained. Attention must be paid to empty the bladder and rectum, or, at least, not to mistake their contents for morbid accumulations. In practising the touch, the patient should maintain the same supine position, the head and shoulders raised, the thighs flexed and slightly separated. The practitioner being placed on the right side, Imbert advises the radial surface of the index finger, the nail being paired, to be laid along the vulva, when the extremity, if drawn from the coccyx to the pubis, readily enters the vagina. Inexperienced persons rarely introduce the finger far enough, otherwise the consistence, position, dimensions, and permeability of the neck, and, so far as may be, of the uterus, will not be ascertained. It may even prove necessary, as during pregnancy, when the voluminous womb is inclined forward, or when the neck retires far behind, to press down the body of the uterus with the left hand. In some cases, as where tumours implicate the posterior surface of the uterus—where the body of the viscus is affected—where its fundus is depressed below the sacro-vertebral angle, or where there is narrowness or imperforation of the vagina, touch by the rectum will be requisite, the palmar surface of the finger being, of course, turned forward. The speculum, of which there are different sorts, is, on the whole, less useful and available than the touch. Made use of long ago, it was named *διδασκαλὴ*, by Paul of Ægina, *torculum* by Rhazes, and is engraved in the plates of Gui de Chauliac, in Paré, Guillemeau, and the *Armamentarium* of Scultetus. Recamier, in place of the ancient instrument, proposed a conical tube of polished tin—silver is preferable, proportioned to the vagina, with an extremity perpendicular to its axis, and furnished with a round edge, capable of including, without injuring, the neck. The larger end is cut slanting, and furnished with a short handle. I have repeatedly witnessed the employment, by Dupuytren, of this simple instrument, which, as avoiding all complication and risk of laceration, appears fully superior to the three-branch speculum of Boivin, the bivalve of Dubois and Ricord, the four valve or branch of Piorry, and the six-branch of Colombat. Galenzowski has proposed a boxwood core composed of three pieces, the middle one to be withdrawn first; this, however, seems a needless refinement. The head and back of the patient, otherwise seated near the edge of the bed, should be well supported. Piorry recommends a piece of slit linen thrown over the parts, and it may be well to have lint, sponges, oil, a canula, and warm water at hand. The instrument, previously warmed and oiled, may be introduced with a semi-rotatory motion to the requisite depth. The condition of the vagina, state of the uterine orifice, lesions of continuity, and character of the discharge, are now successively inquired into. The inspection concluded, the speculum is slowly withdrawn, the branches, if the construction require it, being previously approximated. As for the stethoscope, applied to the abdominal parietes by Kerkaradec in pregnancy, curved and thrust as far as the neck of the uterus, therefore termed

motroscope by Nauche, it does not come within the compass of this work further to advert to it.

The treatment of uterine cancer in advanced stages is purely palliative. Duparcque thinks he has done good by half a dozen leeches thrust up the speculum, by means of a rag, to the neck, previously cleared by a tepid injection; they fasten with little pain, quickly gorge themselves, and fall off. Lisfranc, Recamier, and Ricord, have tried pledgets of lint dipped in the acid nitrate of mercury, say one part of the nitrate, eight of nitric acid, and twelve of water; the chloride of antimony, gold, or zinc, the solution of the nitrate of silver or the solid stick, lastly, creosote, have likewise been severally employed. Leroi speaks of alleviating pain by douches or injections acidulated with phosphoric acid. The oxide of gold was resorted to by a practitioner of Montpellier, but we cannot yield credence to the alleged cures. Arsenic has been taken internally; Ullman says the efficacy of iodine is incontestible; yet, for all these specifics, the disease, unless destroyed by caustic, ligatures, or the knife, is sure to carry off the patient. Even in case of successful extirpation, we cannot be certain that the cancerous diathesis will not lead to the reappearance of the disorder in the same, or other locality. Too frequently it is concurrent in different organs; while its removal from one proves the signal for its outbreak in another. Opium, conium, belladonna, and henbane, whether by injection or the mouth, are of sovereign utility in allaying pain, and in smoothing the rugged path to the tomb. Excision of the neck has several times proved successful; and if one could be decided as to the existence and exact seat of the disease, the operation would be most justifiable. There is reason to apprehend, however, that it has been several times performed when there was no cancer; while, in others, patients have been pronounced cured, when the disease, in reality, continued to spread with eventual fatal results. The whole womb, even, has been taken away; this most unjustifiable act should never, under such circumstances, be repeated.

VIII—AMENORRHOEA, DYSMENORRHOEA, MENORRHAGIA.

THE immediate utility of the menstrual discharge we do not exactly know, but its cessation, whether as cause or consequence, is usually connected with more or less constitutional derangement. It is a popular notion with women, that amenorrhœa is the source of most of their ailments, whereas, in reality, it is often the effect rather than the cause. Indeed, it is difficult to imagine how the menstrual discharge could be arrested in any healthy subject without some preceding morbid influence. Though usually the source of fresh indisposition, I have seen menstrual stoppage in young women, in every other respect in apparent health. Under the term suppressed menstruation, several distinct pathological conditions, distinct at least as to their causes, are comprised. In a few rare cases, the menses, owing to imperforate hymen, vagina, or uterus, are retained; in other respects, they may not appear at the proper period, or having appeared, may cease, from sudden impressions of terror, cold, disease, or the advance of years.

The menses may be retarded, scanty, or absent, in the replete, vigorous, and plethoric, also in the anemic, chloritic, and debilitated. As celibacy retards, so sexual intercourse tends to promote the discharge. Young persons are most liable to cessation, those more advanced, to excess. Amenorrhœa may be symptomatic of uterine or pulmonary disease; individuals, nevertheless, menstruate far on in either. A very few never menstruate; Lisfranc, not to mention others, records fourteen instances. Some, again, menstruate for a while, then cease; while a few commence late in life. Pregnancy and lactation, as well known, suspend the evacuation; yet there are instances, of which I have known some, of persons who menstruate while suckling, and it has been even said, though we cannot imagine how, in the earlier months of pregnancy. The secretion, like the lochia, is certainly derived from the uterus, no portion of it from the vagina. The fluid, as Desormeaux and Paul Dubois observe, has been known to issue from wounds of the uterus, as well as after the Cesarian operation. In prolapsus, it flows from the orifice, and, if the aperture of pessaries prove insufficient, may accumulate in the hollow. Finally, if the finger be introduced during menstruation, the uterine discharge, it is said, may be felt flowing from the cavity of the uterus.

Retardation of the menses is not unfrequent; suppression, however, much less so. Strictly speaking, retention or emansio, sometimes applied to the former, can only ensue when there is imperforate vagina or uterus. On the coast of Africa, menstruation, and, consequently, childbearing, are extraordinarily early; a precocity that extends, more or less, to Anglo-Africans, Anglo-Australians, and Anglo-Americans. I have known menstruation in this country to commence at twelve, and even eleven; and I saw a girl at her term, in the Dublin lying-in hospital, who, if I recollect aright, was only thirteen. Of four hundred and fifty women, Mr. Robertson, in the *Edinburgh Medical and Surgical Journal*, states that ten menstruated in their eleventh, nineteen in their twelfth, fifty-three in their thirteenth, eighty-five in their fourteenth, ninety-seven in their fifteenth, seventy-six in their sixteenth, fifty-seven in their seventeenth, twenty-six in their eighteenth, and twenty-seven in their nineteenth and twentieth years. The inhabitants of northern regions menstruate comparatively late, and it has been even said, in the summer months only. In a memoir by Marc Despine, it is stated that the majority of young women in Paris menstruate towards fourteen; the twelfth and fifteenth years come next. Bouchacourt and Pétrequin have published similar results. In other respects, menstruation has commenced in infancy onwards. The change from childish carelessness to grace, dignity, and maidenly reserve, which more or less characterizes the occurrence, has been the theme of observation to every observer. The discharge, at first serous, then sanguinolent, varies from three to six ounces, more or less, and persists from three days to a week. It comes on with grinding pains, weight about the back and loins, impaired appetite, spirits, and strength. Some, however, experience little inconvenience. Expulsion of false membranes, most frequent in difficult, has been known to ensue in ordinary menstruation.

So important is this evacuation to the well-being of the economy, that when the natural outlet is interrupted, nature attempts, by what is

called vicarious menstruation, to supply the deficiency. Thus, we have authentic instances of its occurrence from the ears, nose, eyes, skin, groin, lungs, mammae, stomach, fingers, feet, and back; I have known it from the rectum. In this, as in other cases, it was not habitual, and sometimes alternated with the regular discharge. In a few instances, the evacuation has continued from the cavity left by drawing a tooth, or from the scarifications made preparatory to cupping. Certain women menstruate once in three weeks, instead of once a month; but the occurrence, in other respects, has no connexion with lunar periods. Gall, erroneously indeed, would assign fixed intervals, two in number, for women to menstruate in, all over Europe. Symptoms of amenorrhœa, whether as regards suppression or undue retardation, vary with the causes which give rise to it, and with the complications, chlorosis more especially, needless to particularize, which accompany it. Independent of cerebral congestion and headache, temporary blindness, as Peter Frank records—mania, as related by Wendt, have been known to ensue. Disorders the most acute, however, may coexist with uninterrupted flow of the menses. I have also seen them come on, sometimes even for the first time, in measles, continued and intermittent fever, pneumonia, and pleuritis. Absence of the menses may coexist with plethora and excessive vigour, or with every mark of anæmia and debility. The change of life, or entire cessation of the menstrual discharge, as Denman observes, is just as natural as its first appearance. If, however, there be any tendency to uterine or mammary disease, the latter will either now make its outbreak or hasten its progress. The discharge becomes irregular in quantity, as well as in its periods; at the same time, while some grow fat and corpulent, others continue meagre and lean. Many assume, in part, the characteristics of the opposite sex; a slight beard covers the chin, the voice becomes hoarse, and the mind, if cultivated, attains a higher maturity. Those who pass this period happily, enjoy increased chances of prolonged life.

In place of ensuing in a natural easy manner, whether first or subsequently, the menses may be sparing in amount, and rendered with pain and difficulty. No condition is more to be commiserated than that of a woman who labours under habitual dysmenorrhœa, returning every month, sometimes every three weeks, with pains which Locock compares to those in the first stage of labour, in the back and loins, shooting down the legs and thighs, and lasting perhaps a week or ten days. Boerhaave mentions women who were hardly ever a week—*vix integra septimana*, wholly free from the complaint. I have known a few owing to the insupportable anguish, to roll themselves on the floor, others to go into fainting fits. In some, the pains seem neuralgic, hysterical; in others, they appear connected with the menstruating function, and have been likened to strangury or colic. Triangular clots, sometimes fibrinous and discoloured, of which Morgagni, Frank, and Lachapelle, have given curious instances, are often discharged; also deciduous, false membranes, yielding a tolerable mould of the interior of the uterus, and giving rise to the supposition of abortion, which, in its turn, is sometimes mistaken for dysmenorrhœa. The latter is most frequent during the first months of menstruation; sometimes, however, only coming on at others continuing after marriage, though without any relation to the intercourse of the sexes. This condition, not necessarily, however, is

very apt to be attended with barrenness. Of those whom I have treated, I can recollect some who conceived, while others remain childless.

Excessive menstruation—excessive as to quantity, frequency, and continuence, is the third form of menstrual derangement. Adults, rather than young persons, and the inhabitants of warm rather than cold climates, the luxurious inmates of heated rooms, as well as poor, ill-fed women, subject to every species of exposure, are the usual subjects of menorrhagia; or, as some term it, metrorrhagia. According to Boivin and Dugès, in their *Maladies de l' Utérus, et de ses Annexes*, young married women, those who have often aborted, and persons of a lymphatic nervous temperament, are most liable. I once treated a very severe case of it in a young unmarried lady. The line of demarcation between excessive menstruation and actual hemorrhage is not always obvious. The discharge affords no accurate criterion, since the fluid in menorrhagia, and even in dysmenorrhœa, presents all the characters of ordinary blood. Hall and Mackintosh would restrict the appellation to cases in which the fluid, at first at least, does not coagulate. The discharge, in other respects, may ensue in the robust and plethoric, as in those who are the reverse; hence the distinction into active and passive menorrhagia. Locock, as well as some others, adverts to a form of menorrhagia, in which the intervals, in place of being at monthly or shorter periods, are protracted, perhaps for six or eight weeks. The affection in married women, from the coagulated blood, and albuminous flakes, is apt to be confounded with abortion. After final cessation of the menses, the periods are often extended and the discharge excessive; indeed, Boivin and Dugès observe that menorrhagia is then very apt to ensue. I have met with it combined with diarrhœa, and once or twice with hemorrhage from the rectum. It sometimes occurs along with tumid mammæ, and more or less fever, in young children; but, according to the last-named writers, is not then of great importance. Much information may be derived on the subject of puerperal hemorrhage during or after pregnancy, from the pages of Lachapelle, Rigby, and others. To hemorrhage concomitant on organic disease, I have already adverted. As Lachapelle and Hall remark, leucorrhœa is a common adjunct of menorrhagia. Sometimes the menorrhagic tendency appears hereditary. Gendrin mentions a family in which all the girls, with the exception of one who had epistaxis, were attacked, for three generations, with uterine hemorrhage, coming on from the sixth to the eighth year. Lamotte also records an instance at seven. In such cases, the ordinary menstrual discharge is early. The generative functions are commonly interrupted, and with so much the greater certainty, the more chronic the affection. The discharge is usually accompanied with pains running down the back and loins, greatly augmented on walking. I have seen cases in which the very attempt produced a sense of swimming and inclination to faint. Cephalalgia, in the occiput more especially, is often extreme; and if hemorrhage prove considerable, the face becomes blanched, vision grows dim, the pulse is hardly perceptible, while lipothymia, convulsions, and even death may ensue. In chronic cases, anasarca of the extremities, the *πῶδῶν αἰδήματα* of Galen, with serous effusions in the chest and abdomen, sometimes takes place, and the blood itself becomes little better than coloured size.

Every thing capable of affecting the general health is also adequate to derange the course of the menstrual discharge. Many, however, are influenced to their prejudice more readily than others; and I have seen some who menstruated under circumstances apparently the most disastrous. Many young women do not menstruate, as if from some incapacity on the part of the uterus or related organs to perform this salutary act. Gendrin reproduces, with additions, some views of Home, Valentin, and Bernhardt, to which Lee further appears to yield assent, going to shew that there is a monthly development of one or more of the vesicles of De Graaf in one ovary, which, unless expelled in a fecundated state into the Fallopian tube, force an opening through the proper and peritoneal coats, healing up by a circumscribed process of inflammation, leaving a cicatrix once supposed to be only met with in persons who had borne children; that the uterus, by a law of synergy, enters into a state of hyperæmia or turgescence, with expulsion of the menstrual fluid, maintaining the generative organs in healthy functional activity, and that these vesicles are not developed before puberty, or during amenorrhœa. Power, indeed, in an essay on the periodic discharge in the human female, conjectured that the monthly escape of an ovum from the ovarium was the cause of menstruation, which he agrees with Haller in looking upon as an imperfect or disappointed nîsus on the part of the uterus in the production of the membrane, or decidua necessary for its connexion with the impregnated ovum. The fact of the cessation of the menstruating process, after the removal by Pott of the ovaries in a young woman in St. Bartholomews, as well as a parallel occurrence related by Boerhaave of a sow-gelder's daughter, in both of whom the menses ceased—the turgescence observed in the ovaries during the menstrual period by Targioni, as well as the engorged and painful condition of the same organs, which Imbert says may be felt at the monthly periods, deep in each side of the pelvis, appear to yield further corroboration to the foregoing views. Similar phenomena are witnessed in the inferior animals even: Osiander saw the ovaries and Fallopian tubes of a crimson hue during the period of heat in the ape. Raciborski, however, observes, that if the alleged facts were true, the ovaries of women, arrived at twenty or thirty, should display numerous cicatrices, and that the faculty of generation, as there are rarely more than twenty or thirty ovules, should then be extinct. Chronic disease of every kind, phthisis, organic alterations of the different viscera, dropsical, and other affections, are apt, sooner or later, to interrupt the catamenia. Terror, sudden shocks and impressions, more especially cold and moisture, are acknowledged causes. A young woman menstruating, or about to menstruate, goes out insufficiently clothed, or is unduly exposed to atmospheric vicissitudes—the secretion is checked or averted, the appetite, colour, and spirits are lost, the digestive organs go astray, the feet swell and grow cold, the abdomen becomes tumid, while wandering pains are experienced in the back and loins, with all the evils that too often follow in the train of amenorrhœa. Heated rooms and the midnight dance, with the after departure through the chill night air, the body jaded, and every pore exhaling moisture, too often strike the barbed arrow of disease through the unresisting organization, and consign many a young creature to a premature tomb. One function being impaired, the whole health is so. Again and again have I witnessed

pulmonary tuberculization preceded by repeated or persistent amenorrhœa. I have even known the application of wet cloths, and once the feet dipped in cold water, to check the evacuation, and enable a girl to attend a party. Those who labour under the menstrual discharge for the first time, unprepared for the occurrence, have been so shocked and surprised, as even, according to Peter Frank, to induce suppression.

The causes of dysmenorrhœa are often very obscure, so that it is difficult to assign even a plausible reason. The occasional expulsion of false membranes has led to the supposition of inflammation: Locock admits a species of uterine irritability bordering on this; but the hypothesis is one which it would require post-mortem examinations to substantiate. Mackintosh, preceded by Morgagni, had a notion that dysmenorrhœa might sometimes be accounted for by a small os uteri; but admits the possession of a preparation of a small os, the subject of which had been mother of several children. Boivin and Dugès witnessed obliteration of the os; which, in many cases, appears to result from advanced age. Women of sanguine temperament, says Gendrin, and those of extreme nervous susceptibility, are prone to dysmenorrhœa: he also vaguely ascribes more or less influence to excessive menstruation, forced celibacy, early or excessive sexual intercourse, erotic ideas, as kept up by books, images, scenic representations, and an imagination not duly held in check by reason or religious principles. Dugès relates a case from anteflexion of the uterus; but, in general, we must coincide with Paul Dubois, and Desormeaux, in an interesting article in the *Dictionnaire de Médecine*, that the proximate cause is obscure, and rarely to be got at. The causes usually assigned for menorrhagia or metrorrhagia are falls, blows, dancing, walking, riding, sexual excesses, and costiveness. Europeans in India are said to be so subject to menorrhagia, leucorrhœa inclusive, as often to necessitate removal to a colder region. Locock conceives that obstinate menorrhagia, as well as hemorrhoids, may occur in persons with impeded or disordered abdominal and hepatic venous circulation. Gendrin, indeed, mentions that women who hawk baskets supported on the abdomen through the Parisian markets, are very subject to uterine hemorrhage, as well as varicose extremities. Lisfranc goes so far as to say, that a discharge of blood of some duration from the uterus indicates, pretty constantly, some degree of organic disease, being in fact to the uterus what hemoptysis is to the lungs.

The treatment of menstrual irregularities has not always been judicious; emmenagogues have too often been blindly administered without adequate attention to the constitution of the patient, or the cause of the complaint. The plethoric have been subjected to needless stimuli, and the weak and anemic further debilitated. We should never overlook the condition of the uterus, or omit to recollect that indirect measures will often restore local vigour. Collaterally with other means indeed, the specific influence of emmenagogues is not to be despised. When the first appearance of the menses is unduly retarded, we should look well to the general health, and should see that the patient is sufficiently supplied with nourishing food, air, clothing, and cheerful occupation. Young persons growing fast, ought not to be debarred from plenty of good bread and animal food; and, next to this, should have free access to the pure fresh air. Hours over late or early,

excessive study, long-continued standing or sitting, in fine, all unnatural restraint, are bad preparatives for healthy uterine action. Sparing or tardy menstruation and pulmonary tuberculization are not infrequent results. It is incontestible, that food, inferior even as to quantity and quality, with abundant air and exercise, will nourish and develop human stamina better than the best without these requisites. Hence it is, that the children of the country poor are often far superior in strength and vigour to those of the rich. Cheerfulness and hilarity are necessary to the young as the air they breathe; soured by austerity, they languish and pine, exercise is declined, food rejected, the health breaks down, and the menses do not appear. Daily exercise, so as to induce slight fatigue, is the best aperient; but if sedentary habits be indulged in, the bowels necessarily become torpid. Early hours are further expedient, warm substantial clothing, in place of flimsy finery, also frequent tepid sponging, or the shower-bath, with copious after friction. Imperforate hymen or vagina, of which authors relate instances, is an occurrence barely possible; and should, therefore, be kept in view. A case is related in a recent Belgian Journal, in which the patient, wasted with fever, uterine, and vaginal distention, experienced immediate relief by puncture, with copious discharge of dark inspissated blood. Fabricius ab Aquapendente, page 572 of the Leyden edition, mentions a patient like the last in imminent danger; when, after an incision, *statim maxima sanguinis, crassissimi, viscosi, aeruginosi, ac foetidi copia effusa*. The hymen may be unduly thick, or there may be a vaginal septum; sometimes the vagina is even wholly imperforate. *Vagina tota*, observes Morgagni in his sixty-seventh epistle, *si initium et finem exciperes, omnino erat solidi cylindri instar*. The labia, as Denman and others observe, are occasionally adherent in children, but in general spontaneously separate. Details on the subject of imperforate hymen, as well as other congenital malformations, are related in the fifth chapter of Boivin and Dugès's work, as well as in the forty-second division, headed colpopathia, of Naumann's *Handbuch der Medicinischen Klinik*. Instances of imperforate uterine orifice, sometimes relieved by a trocar or pharyngotome, are recorded by Chegoin, Delpech, Benevoli, and Desgranges.

Should menstrual delay or suppression, emansios, oppressio, coexist with uterine engorgement, so termed, and general plethora, it may be necessary, five or six days before the presumed menstrual period, to abstract blood, once or oftener from the arm—formerly, the foot was preferred. In other cases, the application of leeches to the loins, groins, labia, or pubis, proves sufficient. I have found leeches to the groin, on the principle of derivation in the vicinity of an affected organ, with other means, followed by prompt success. Compression of the crural arteries, with a tournequet, is hardly a justifiable, as it is a very uncertain procedure. The bowels should be well cleared out, with an aloetic pill, followed by salts and senna in the morning. Locock places confidence in simple pediluvia or with the addition of mustard. In chlorotic amenorrhœa, on the other hand, every means to strengthen and invigorate the constitution should be resorted to. Sufficient walking and riding, great attention to the skin and bowels, with moderate quantities of the compound aloetic pill, will be found most serviceable. The meals should be regular, and we should not allow the stomach to

be over-loaded. Nutriment should be succulent and nutritious; roast or broiled meat, with a little wine or porter. Of the different emmenagogues, savine, rue, turpentine, lytta, iodine, ergot of rye, myrrh, and others, I place most confidence in iron. Premising that the bowels shall be duly evacuated once or twice a week with the compound aloetic pill, or the aloetic pill with myrrh, I would administer, twice or thrice a day, a couple grains of sulphate of iron, made up with the extract of taraxacum or gentian, which I would continue for weeks, or till the appearance of the menstrual discharge. The foregoing salt is the main ingredient of Welsh's pills, which enjoy considerable popular repute. I have tried as an adjuvant the compound iron mixture of the pharmacopœas, but it is apt to nauseate young stomachs, also the acetated or muriated tincture. Blaud recommends the sulphate of iron and carbonate of potash, say half an ounce of each, made up into forty-eight boluses, with mucilago of gum tragacanth, from two to perhaps a dozen in the day. An ounce of each, pulverized, then mixed with a pound of syrup or treacle, a teaspoonful occasionally, answers very well, not only in the case of girls, but anemic young men whose systems are in a condition analogous to that which obtains in amenorrhœa, chlorosis, and leucorrhœa. The patient should be informed that the stools turn black. If perchance the bowels become costive, gentle aperients will be required. Brera, Recamier, and Trousseau, tried fifteen drops and upwards of the tincture of iodine, three or four times a day, in some aromatic vehicle, with considerable success. Monneret and De la Berge mention that boluses, six in all, one every three hours, composed of aloes eight grains, savine six, are employed in the Italian hospitals. Two examples are recorded in the *Archives Générales de Médecine*, in which sinapisms to the breasts restored long suppressed catamenia. I would not, however, resort to these, till iron, with other means, had failed. The different watering places, and change of air generally, are good auxiliaries. In the event of local structural disease, we must be governed by circumstances.

Our ignorance of the causes of dysmenorrhœa somewhat precludes, obvious hygienic measures excepted, the satisfactory employment of remedies. The idea of periodic inflammation, in this case, appears absurd. Venesection might be expedient in plethoric individuals, and would seem preferable to leeches to the groins, or cupping over the loins. Roche, indeed, states that bleeding from the arm, on the eve of the menstrual discharge, induces its immediate and painless outburst. Many, however, are weak and debilitated, and will not bear artificial depletion. The hip bath is a favourite remedy with some, but I should esteem complete immersion greatly superior, as also to the flannel swathes dipped in hot water, recommended by Good. The bowels must be regulated by suitable gentle aperients: I have found a pill, as recommended by Locock, composed of sulphate of iron, compound extract of colocynth, soap and opium pill, each two grains, of considerable advantage. Ferruginous preparations of all kinds, with cold or tepid shower-baths in the intervals, tend to strengthen the constitution, and ward off attacks. It too often happens, that the failure of other curative measures reduces us to have recourse to opiates. A grain and half of the watery extract, or fifteen drops of the acetate or muriate of morphia, every six hours if necessary, yields ease and comfort,

and affords time to concert measures that will avert the return of the disease. Belladonna and opium plasters, with diffusible stimuli internally, are favourites with some. Gooch, Locock, and Dewees, have found colchicum and guaiacum useful, when there was a presumption of rheumatism. Patin of Troyes, and others after him, attest the efficacy of the acetate of ammonia, which is alleged to exercise a sedative influence over the uterus. Mackintosh's proposal to dilate the os uteri, will hardly meet general adoption. Many, says Roche, who are regular in the country, menstruate sparingly and painfully in town; but I have known those on whom the country air failed to secure this desirable result.

The great thing in menorrhagia is to arrest it in time, so as to prevent its continuance from proving hurtful to the constitution. Some practitioners, in order to diminish the hemorrhagic molimen, would bleed; but I have seen no instance in which this was necessary. The habitual subjects of this debilitating affection are too often soft and flabby, with swollen feet and pale countenances. In one case, the disease came on with fever, after a wetting at the menstrual period. The uterine loss was not so considerable; but, before my arrival, excessive, almost irrepressible epistaxis had ensued. I found the face pale and bloodless, the pulse rapid and fluttering, with rambling and delirium, so as to render large opiates and diffusible stimuli necessary. In another, a married lady, the plug, opium, and lead alike failed, and I found it requisite to lay the patient on her back on the floor, to drench the loins with water cooled with ice, and have recourse to injections of the same with an enema apparatus, both into the rectum and vagina. The patient was then shifted, placed in bed, and bits of ice introduced during the rest of the night. She was several times after apparently moribund, particularly when copious semi-putrid clots came away; and a week elapsed before she could be pronounced out of danger. I was with the case from the first, and, after careful examination, could discover no trace of membranes or ovum in the discharges. The patient had experienced previous, but much slighter attacks. One of the first requisites in menorrhagia is the recumbent posture on a cool mattress, the head low, and every attempt at exertion proscribed. Cold water, if necessary, preferably, as Gooch recommends, from a height, may be poured over the belly, hips, loins, and pudenda. Wet cloths must be changed, so as to prevent them from being converted into warm fomentations; in other respects, the applications must not be continued so as unduly to lower the animal powers. A silk handkerchief oiled and thrust carefully into the vagina, forms a very good plug, which is to be removed, or if necessary changed, in four and twenty hours. In certain cases, however, the blood loses, to a great extent, its coagulable properties. A couple grains of solid opium, with or without the acetate of lead, made into a pill, or rubbed down with mucilage, and forty or fifty drops of the tincture, may be given for a dose, and repeated, if requisite, in four or six hours. In fact, opiates, and so far as expedient, diffusible stimuli, must be periodically repeated, till the constitution can fall back on its own resources. An egg may be beaten up with a little brandy, or the latter may be administered in panada or gruel. If the stomach prove irritable, we may employ Seltzer or soda water, or even counterirritation, by means of the compound camphor liniment, externally. The

bowels must not be allowed to remain unduly costive, but purging is out of the question. Alum, nitre, ipecacuanha, ergot, and even cold injections into the uterus, have been recommended. Siebold, Ulsamer, and others, have tried compression of the aorta through the abdominal parieties; might not this, however, extend to the cava, and aggravate the disease? Transfusion in extreme cases of puerperal hemorrhage has been practised by Blundell, Klett, Berg, Bömer, and others. Should we apprehend any connexion with cardiac hypertrophy, the heart must be attended to. In congested liver, with retarded venous circulation, Locock advises small doses of Plummer's pill, with the extract or decoction of dandelion, also a combination of soap, rhubarb, and ipecacuanha, assisted if necessary by enemata.

IX—LEUCORRHŒA, FLUOR ALBUS, UTERINE CATARRH.

THIS disorder is one of extreme frequency and long continuance; and for these and other reasons merits great attention on the part of the practitioner. It is a common attendant on uterine disease, chronic inflammation, so named, of the neck and body, erosions and ulcerations, both common and specific, carcinoma, polypus, also mere functional disorder, gonorrhœa, and menstrual irregularity; but, certainly, is any thing but necessarily indicative of structural change. It is not the less serious, however, in many cases undermining the strength and spirits, and inducing or aggravating rachialgia, anorexia, dyspepsia, chlorosis, and even hysteria. Leucorrhœa has been divided, according to its duration and severity, into acute and chronic. In the latter, the discharge becomes profuse and inveterate, of the consistence and colour of white of egg, sometimes however greenish, reddish, or even bordering on black. In young subjects, it has rarely much odour; but, afterwards, becomes sour, and even fetid, with pains and dragging in the loins and hypogastrium, more or less itching or scalding in the sexual parts; sometimes to that extent that the patient can hardly stand or walk. The face becomes blanched or sallow, the hands and feet, the latter especially, cold, perhaps œdematous, the belly tumid, the breath foul, and the appetite fled. The os tincæ, according to some, is larger, softer, and more patent than natural; Fricke goes so far as to assert that it is excoriated. Mansfield Clarke would consider whites a symptom rather than a disease; the distinction, in this case at least, is nugatory. Some place the seat of the disorder in the vagina, others, among whom we find Morgagni, in the uterus or cervix; and Jewel, in his treatise, makes an attempt to discriminate. In recent mild cases I should say the vagina, in severe and inveterate ones, the vagina and uterus. Leucorrhœa may ensue at all ages; oftener I should think from thirty upwards, after than before marriage; but I have known great numbers of young girls to labour under it. As for critical, metastatic, hereditary, and epidemic leucorrhœa, its existence is very questionable. Cold, damp, low diet, uncleanness, foul air, want of exercise, and depressing passions, more especially in persons of a weak, debilitated, lax habit—any thing, in fine, that breaks down or impairs the constitution, conduces to its production. Inferior nourishment weakens the

stomach primarily, and secondarily every other organ. Beer, cider, and subacid fruits, are causes too trivial to be alleged. Lagneau, however, says that *café au lait*, or milk and coffee boiled together, particularly predisposes. He avers, that he has known it to produce leucorrhœa in three days. Irritation from ascarides sometimes appears to be the only source of leucorrhœa. Jäger, in the eleventh volume of Gräfe and Walther's Journal, in a case of this kind occurring in a young woman, mentions having detected whole nests of ascarides between the folds of the vagina. Schneider witnessed two cases, one of them in a child of four, of excessive leucorrhœal discharge, and another in which the hymen was eroded, both from the presence of these insects. Very little girls sometimes experience excoriation and slight discharge, owing to the irritation caused by the urine, sufficient attention to cleanliness not being paid by those who have charge of them. The practice so common among the lower classes on the continent, of keeping choppers under the clothes, doubtless predisposes. Should there be suspicion of syphilitic or uterine disease, it will be necessary to institute an examination.

The treatment of leucorrhœa is local and general. Gentle exercise in the open air, on foot or otherwise, is very desirable. Persons residing in the country, every thing else alike, enjoy immunity from leucorrhœa much more than those in town. Early hours, extreme cleanliness, the abandonment of pernicious indolent habits, a plain nutritive regimen, fruit, wine, or malt liquor in moderation, are essential requisites. I have found the shower-bath, cold or tepid, two or three times a week, followed by copious friction, of the greatest service. The clothing should be suitably warm; flannel drawers and waistcoat, with lamb's-wool stockings, and strong boots or shoes. Lagneau urges, in the strongest terms, the benefits of change of air; and proceeds to state, that the development of multitudes of girls in the higher ranks is arrested by the unhappy influence of leucorrhœa on the constitution. Hence it is that so many menstruate badly, and become ill able to discharge the duties of wives and mothers. The artificial, and, in fact, depraved habits of large towns, together with the wilful indolence of many women, militate sadly against their physical welfare.

Some are opposed to the rapid suppression of leucorrhœa: Lagneau mentions peritonitis occurring after a styptic injection; and Locock relates a case of uterine prolapsus with semi-purulent discharge, in which, after the reduction of the organ and introduction of a sponge dipped in a styptic lotion, copious and fatal muco-purulent evacuation ensued from the bronchial membrane. Vogel speaks of expectoration proving serviceable: *interim a sputo crasso ubicunque contigerit, cachexia hæc muliebris aliquantisper levare observatur*. Others, also, advert to the resolution of the disorder by means of spitting or sweating. The danger, however, commonly lies the other way; and, in fact, the suppression of leucorrhœa, rapidly or otherwise, is no easy matter. Cubebs, copaiva, and lytta, have severally been tried, but do not exercise the same influence over the vaginal as the urethral mucous membrane. Of injections there is a vast variety: solutions of the sulphates of zinc, alumina, copper, the bichlorides of zinc and mercury, the acetate of lead, and, more especially, the nitrate of silver; also, the vegetable astringents, port wine, oak bark, kino, catechu, rhatany, and the like, with or without the tincture of opium. Of all these, however,

I have found the nitrate of silver safest and best; a conclusion to which Jewel, Churchill, Bureau-Riofray, and others, have likewise arrived. Melier's recommendation, however, to convey it into the cavity of the uterus, is more than questionable. The strength which I at first prefer, is ten grains of the nitrate to the ounce, and even this I would dilute with a little warm water; but in the London Lock-Hospital they have gone so far as half a drachm, or even two scruples. I think it well to employ a little port wine and water before resorting to the more active styptic, washing out the vagina with tepid water beforehand, so as to allow the injection to come better in contact with the mucous membrane. It may be repeated, using a common female syringe with an extremity, *en arrosoir*. Locock recommends a gum-elastic tube adapted to the common lavement apparatus, morning and evening, or oftener, when a change, ere long, will be witnessed in the aspect and amount of the morbid secretion. Ricord would further introduce a pledget of lint, moist with the solution, into the vagina, or even, along with Jewel, employ the nitrate in substance; a procedure unattended with risk, since, were a portion to be detached, the mucus which speedily envelops it amply protects the vagina. The time necessary to effect a cure will depend on the impressionability of the parts, and the greater or less inveteracy of the disease. Heming speaks of the production of leucorrhœa from hemorrhoids, also from excessive lactation; in such cases, the indication will be to remove the one and put a period to the other.

X—OVARITIS, OOPHORITIS.

IDIOPATHIC inflammation of the ovaries is rare; but ovaritis, as an adjunct in metro-peritonitis, much less so. Puerperal ovaritis, as it is the most frequent, is also the most severe; tho more so, as apt to be attended with purulent deposits. Imbert affirms that he has several times seen acute rheumatism fasten on the ovaries, and that practitioners at Lyons have frequently witnessed the same. Andral speaks of purulent conversion of the ovary without preceding pain or inflammation. Tho symptoms ascribed by Clarus, in his *Annalen*, to oophoritis, so named by him, as peculiar, restless, voluble delirium, with variable pulse, and painful swelling in the region of the affected ovarium, seem to me matter of uncertainty. Naumann mentions headache and vomiting, with fever and local pain, in connexion with inflammation in the right ovarium, following excessive dancing and chill, during menstruation, in a girl of twenty-five. He, as well as Osiander, speaks of more or less sexual excitement, with, perhaps, uterine hemorrhage. Ovaritis appears to take place in the chronic form. In the thirteenth livraison of Cruveilhier, several ovaries are portrayed infiltrated with pus. Portal and Vater relate instances in which the ovary attained the size of the head. Seymour has witnessed abscess in the right ovarium; Callisen and Taylor record purulent or sero-purulent collections of twenty, Logger of twenty-nine pounds. Martin and Imbert relate instances in which the pus escaped from the loins beneath the last rib; Chambon mentions perforation of the uterus, and Boivin a

case in which matter found vent through the Fallopian tubes and vagina. A case in 1753 was stated to the *Académie de Chirurgie*, and one more recently by Andral, in which the bladder formed the outlet. Imbert gives two, in which the communication was through the rectum. This writer, as well as Boivin and Dugès, speaks of phlebitis of the veins of the trunk, as a result of oophoritis. In one or two instances recorded by Seymour and Cruveilhier, the whole or a portion of the ovarium was softened even to diffuence, with debris mingled with pus or serum. The ovaries are further liable to various degenerations: hydatigeniform, cartilaginous, osseous, tuberculous, cancerous, and melanotic. I have several times met with those anomalous formations which Blumenbach sets down to an abortive *niscus formativus*, consisting of mixed masses of fat, hair, bones, and teeth. Similar malformations have been discovered in other situations than the ovaria, in virgins, and even men, as by Ruysch, Baillie, Gordon, and others. Meckel says they are most frequent in the right ovarium. Hairs a foot long were detected by Reynaud; and Reil, in his *Archives*, speaks of so many as three hundred teeth in one subject. Idiopathic ovaritis is a disease which will seldom claim the attention of the practitioner. In the event of fluctuation in the iliac region, David, on opening with a trocar, afterwards enlarged with a common bistoury in the direction of the linea alba. Dubois, not to mention Chelius, Burdach, and others, operated thus, but lost his patient. Martin, to obviate the risk of effusion, advises caustic beforehand to the prominent part of the swelling. He adduces, among others, the case of the Dutchess of Cumberland.

In those frequent instances of encysted dropsy, hydrophoria, which I have had occasion to meet with, I could rarely refer to any ascertainable exciting cause. In a case by Douglas, it came on in a woman of twenty-four after her first confinement, from a blow on the left side. She was delivered twice subsequently, notwithstanding; and after great distress died at the close of three years, seventy pounds of a dark brown viscid fluid being discovered in the left ovarium. I never saw an instance in a woman below thirty; Murat, however, records a case in a girl of fourteen. As it perhaps never ensues before puberty, it yields colour to the supposition of its occasionally originating in a dilated ovarian vesicle. Hydatids, as we find by the observations of Monro, Burns, Coulson, Van Swieten, and many others, are a very frequent source. The menstrual discharge, though not always, is gradually diminished and lost. The sac is usually fibrous, thickened, perhaps scirrhus, or cerebriform; in shape, round, piriform, or irregular. The abdominal dimensions are enormously enlarged; Monro, Morand, and others, relate instances in which the fluid amounted to more than a hundred pounds. The uterus is thrust aside from its connexions, or even atrophied; the bladder pushed against the sacrum, the rectum against the left sacro-iliac symphysis, while the intestines are displaced with functional derangement in all. Ptyalism, depraved appetite, and swollen breasts simulating pregnancy, occasionally ensue. I have often known the disease to subsist without pain or uneasiness; at other times, the respiration and heart's action are greatly disordered. The cysts, multilocular at first, are said to merge in one as the complaint advances. Denman and Boivin record instances in which the contents

escaped into the rectum; in that by the latter, the fees regurgitated into the ovarian sac. Monro mentions the vagina and groin as outlets; Seymour, Dance, and Delpech, the abdominal cavity; Mead and Seymour, the umbilicus; Hooper, the abdominal parietes, with the escape of a pailful of gelatinous matter, followed by some bones. Blundell relates the case of a lady, who, falling from her carriage on a stone, experienced effusion into the abdomen with recovery; Bouchet of Lyons, mentions an instance equally fortunate, after effusion into the bladder; Elliotson another, in which the tumour, after violent purging and vomiting, entirely disappeared in one night; and, lastly, one by Seymour, after some days scrous vomiting. In other respects, the Fallopian tubes are liable, along with or separately from the ovaria, to malignant growths, hydatids, and dropsy. De Haen relates a case in which the hypertrophied tube weighed seven pounds, the contents twenty-three; Van Swieten another, in which the latter actually surpassed a hundred weight. In oophoritis, Clarus is of opinion that the tubes share in the inflammation. Pus and blood have been discovered in them; and Dalmas has detected communication, in a case of this kind, with the rectum.

The treatment of hydrophoria and diseased ovaria generally, is very unsatisfactory. Oslander employed semicupia; but I never was able, by any means that I could think of, to make a satisfactory impression. In extreme cases, tapping may be resorted to, more especially, as Peter Frank recommends, when suffocation becomes imminent. There is another advantage in waiting, the multilocular cysts perchance unite, and should their viscosity not hinder, the contents may be evacuated; after which, some have gone so far as to inject astringent mixtures into the cavity. In some individuals, paracentesis has been performed a great many times with the collective discharge of a vast quantity of fluid. In several instances, life has been prolonged for years, in a few it has been shortened, and in one or two a partial cure has resulted, with perhaps a running fistulous opening. A few, as Houston, Delaporte, Morand, and others, have tried incision, but with very uncertain results, some dying of peritonitis, others retaining permanent fistulæ. It has been proposed to apply caustic, so as to induce adhesion; when the eschar falls off, to employ the knife; and if cavities subsisted, to destroy them with scissors or the probe. Ablation or excision has been practised in this country by Lizars, in America by Smith and M'Dowel, on the continent by Dieffenbach and Ehrhartstein. In the last, the tumour weighed twelve pounds, and with the contents of two accompanying sacs, previously emptied, thirty-eight. The patient was well by the ninth week. The wound, however, is vast, the danger great, and the result wholly uncertain. If ever such an operation is to be performed, observe Boivin and Dugès, it is when the mobility and recency of the tumour lead us to hope there are no adhesions, and when the absence of hardness on puncture implies that of all dangerous complication. Lee mentions a case in which a fibro-cartilaginous tumour at the fundus of the uterus was supposed to be seated in the ovarium, and removed with fatal results.

XI—CHLOROSIS, GREEN SICKNESS.

THIS is a frequent disorder. We daily meet with young persons whose colour is bad, tongue foul, appetite and strength impaired, who, in fine, labour under chlorosis more or less confirmed. It is a species of cachexy, strictly speaking, not confined to women, though far more common among them, and usually, though not exclusively, connected with disordered menstruation. The young girl loses her strength, spirits, and complexion. Her colour, from a blooming red is converted into a strange mixture of yellow, green, and white. The feet swell, the conjunctiva becomes yellow, and the abdomen, in many cases, tumid; the breath grows foul, the appetite capricious, even to the production of pica, with constipation, vertigo, difficult breathing, rapid pulse, and palpitations. The bellows' murmur in the heart, and a peculiar humming, musical sound over the carotids and subclavians, have been observed by Bouillaud and others. The great majority of chlorotic girls are anemic; so much so as to suggest the conclusion, that anemia constitutes a leading ingredient in the disease. Good speaks of entonic chlorosis in vigorous, florid, full-bosomed country girls, conditions which certainly imply another disease. Andral, indeed, inquires whether spasmodic affections, the epilepsy, chorea, convulsions, and palpitations occurring in chlorosis, should not be ascribed to concurrent anemia, as well as to deficient food, air, and sunlight. Chlorosis may last for months or years; some even die, whether of the disorder or superinduced affections. The remains, as Lieutaud and Hall observe, are pale, the blood as in life serous, and nearly destitute of iron.

As regards the causes, there can be little doubt that asthenia, however induced, and retarded or impaired uterine functions, entail the disease. The menstrual discharge, not to advert further to dysmenorrhœa and leucorrhœa, is commonly deficient; yet, that it does not reside in this, is evident from the circumstance of chlorotic young women being often regular. Of twenty-six cases recorded by Bland, in the *Revue Médicale* for 1832, twenty-four occurred in young women from eleven to thirty-two. Of these, fifteen menstruated, but the fluid was serous, almost colourless; the remainder did not menstruate at all. Of the many cases which I have met with, I never knew one, who, if menstruating, did not do so sparingly. Blache compares a chlorotic girl to a chrysalis arrested in its development. Strange notions have been propagated on the subject by Ettmüller and others. Certainly when the functions of the uterus and ovaria, from whatever cause, languish, the finishing strokes to the beauty and perfection of the female frame are wanting, and the organization is retained in a state of languor and inertia. In Nottingham, Hall describes the almost infant population as engaged during many hours daily, over the tambour or lace frame, inducing pallor, debility, and the other results of deficient air and exercise. Terror, fright, as well as the different causes productive of amenorrhœa, are likewise so, to a greater or less extent, of chlorosis. Neglected bowels conduce to chlorosis and anemia, and conversely, these to constipation. It would be going too far, however, to esteem the disease, with Hamilton, an exclusive result of retained excrementitious matter. The over-occupation of school-girls, excessive

tasks in ill-ventilated apartments, the greater natural fragility of their constitutions, and menstrual irregularities, are reasons why they are so much more liable to chlorosis than the opposite sex. I have, however, met with boys of weak constitutions similarly immured, who presented all the outward features of the disease. Fouquier even speaks of a general, who, having been exposed to annoyances and villany, became chlorotic, but was cured by large doses of iron.

Chlorosis, however, might be defined as the anemia of young girls, commonly combined with sparing or absent menstruation, imperfect digestion, and assimilation. In fact, the entire system is engaged; it is a disease, not so much of a part as of the whole organization; springing, possibly, from a given morbid conjuncture, but eventually implicating the functions at large. Chlorosis, from *χλωρος*, green, is distinguished by its mixed, unequal colour, the *pallor albus*, *vel cinereus*, *vel fuscus*, *vel luridus* of Sauvages, from icterus. Should hepatalgia ensue, the case may be more obscure. We distinguish it from cardiac disease, notwithstanding the bellows' murmur, palpitation, musical sounds, and swollen extremities, by the circumstance of these phenomena not being persistent, as well as by their greater amenability to treatment. Local pains in chlorotic cases, as in the head, breast, sternum, side, or abdomen, are not readily explained, but if treated by depletion, may terminate fatally. Malignant disease, productive of a sallow cachectic aspect, rarely occurs in very young women. Vomiting, unattended with epigastric tumour or unnatural dejections, is not indicative of organic disease. Tubercles and chronic inflammation are marked by symptoms not necessarily connected with chlorosis. Naumann saw periodic leucorrhœa and chlorosis, *Bleichsucht*, in a girl of twenty-six.

The treatment of chlorosis merges in that of general anemia and menstrual insufficiency. Every rational means must be employed to give tone to the system, lighten the spirits, ensure better digestion and assimilation, as well as regulate the alvine discharges. In fact, when these indications are sufficiently attended to, chlorosis will, in general, disappear. Prime elements in the treatment are insolation, I mean exposure to the sun's light, and exercise in the open air. Dark sitting-rooms produce much the same effect on the children of the opulent as do cellars, into which light is only partially admitted, on the offspring of the poor. Chlorotic girls should, as much as their strength will permit, walk and ride a good deal in the open air. Passive exercise, as driving and boating, is advisable in warm weather. They should be clothed from head to foot in flannel, and remain no longer out than they are able to maintain an active circulation. Recruited by the genial in-door temperature, they should go out afresh, in fact live as much as possible in the open air. Erotic novels and other similar trash, with fireside allurements generally, should be forsworn. Moderate dancing, in cool airy apartments, is proper. I would strongly enjoin the tepid, eventually the cold shower-bath, keeping the hair dry, followed by active friction over the whole cutaneous surface with a coarse dry towel. Sea or river bathing, in the season, is occasionally expedient. The country or sea-shore should, if possible, be resorted to for at least three months in the year; if this be omitted, I should almost despair of other means. Tender, digestible beef and mutton,

good fowl, oysters, and fish, with stale bread and a moderate allowance of potatoes and vegetables, are best. If a capricious appetite crave other food, it should not, unless positively hurtful, be wholly prohibited. Good claret, common sound Bordeaux, otherwise porter, diluted port, sherry, or Madeira, will be advisable as drink. If there be any mental disquietude, the cause, if possible, should be traced and remedied. Many conceive that marriage is a certain cure; chlorotic girls, however, are hardly calculated to become suitable wives or mothers. With good treatment, they will almost always recover, after which the sooner they marry the better. The bowels should be duly attended to, for which purpose the compound aloetic or gamboge pill, the powder or tincture of jalap, as recommended by Hamilton, or the wine of aloes with the muriated tincture of iron, answers very well. I find aloes, made up with the sulphate of iron and extract of taraxacum, an excellent remedy. Iron is good in all forms, and though not an actual specific, comes next to one. Delens and Blaud strongly recommend the boluses already mentioned, consisting of the sulphate of iron and carbonate of soda or potash, made up with mucilage, or we may substitute the ferruginous syrup before described. At first, says Blaud, a slight rosy hue appears in the face, the eyes become brilliant; all symptoms of nervous reaction, gastralgia, sleeplessness, tinnitus or buzzing in the ears, and cephalalgia, disappear; the respiration grows free, the pulse slower, palpitations become less frequent, oedema is dissipated, muscular strength, cheerfulness, and appetite return, a general feeling of health is substituted for gnawing uneasiness, and the different functions resume their normal activity. The disease, in a third of the cases, has been said to disappear in less than twenty days; in less than twenty-six, in a majority of the remainder. The chalybeate should be gradually discontinued some time after the recovery of the patient. Baillau has recommended ipecacuanha, which, by inducing vomiting, might be supposed to produce the benefits conferred by sea-sickness. In the chlorosis of children, occasionally fatal, witnessed by Gooch, Armstrong, Hall, and termed by the latter leucosis, a few grains rhubarb with one-fourth of a grain of the sulphate of iron, twice a day, nutritive food, air, and warmth, commonly restored the wonted health and colour.

XII—HYSTERIA.

THIS disorder is referred to by Hippocrates as *ὁστέρινα παθή*, by Galen as *ἀπνοια τῆς ὁστέρας*, *vexatio matricis* by Cœlius Aurelianus, *morbus vulvæ* by Celsus, not to mention other appellations by succeeding writers. Though so variable in character, its nature is commonly obvious to the experienced practitioner. Infinitely more frequent among females, I have met with a similar disease in the opposite sex. Sydenham asked why he had been sent for to see a gentleman, who did not appear to require medical advice: the attendants replied that he should shortly witness; whereupon presently, the patient burst into an uncontrollable fit of tears. Crying and weeping, not to mention laughing violently, without adequate cause, are frequent forms of

the disease. A girl, for example, complains that she is choking, that she cannot breathe, that a ball rising in the throat threatens to suffocate her. Convulsive motions, perhaps, with screaming and shouting, now ensue; the arms and legs are agitated, and the body twisted in every imaginable direction. I have seen young women thus circumstanced, persons sitting on their bodies, others vainly trying to constrain their limbs; though, if let alone, perchance, and firmly told to remain quiet, they have become comparatively tranquil. Every act of an hysterical individual, adequate cause being offered, partakes of the same character. I have been present when a spider has fallen, or seemed to fall, on a young girl chatting among her friends, when she would forthwith begin to sob, and cry, and scream, as if her heart would break, winding up, perhaps, with a laugh at the close. To see one with dishevelled hair knocking her head against the wall, floor, or sides of the bed, and struggling like a bacchante or pythoness, would almost induce the suspicion of insanity; yet, perhaps after a little, the patient becomes perfectly well, and apparently, though in reality not wholly, unaware of her previous situation. Occasionally there is a copious discharge of limpid urine; and certain French writers affirm a vaginal secretion, which Georget, however, asserts is purely leucorrhœal. The ball, *globus hystericus*, which seems to rise from the breast or abdomen to the throat, is one of the things which gives the patient most uneasiness: she grasps her throat instinctively, as if to tear away the imaginary obstacle. The countenance is often red and vultuous, the veins of the neck swollen, and the respiration so impeded as to simulate asthma with distressing accuracy. Sometimes there is pain in the forehead, as if a nail were driven in, *clavus hystericus*. The convulsions are tonic or clonic, commonly the latter; patients rarely sinking into the sopor which follows epilepsy. Sometimes, however, cataleptic phenomena supervene; and hysterical stupor, if we may employ the term, is not very unusual.

I have met with hysteria, though rarely, in persons of advanced life, also before puberty. A young lady of twelve complained of violent pain in her chest, with orthopnoea and breathing which resembled sobbing. A slight bronchial affection, and a little hemoptysis excepted, there was no rational or physical sign indicative of pulmonary or cardiac disease. I was sent for during the night, the child, as I was told, dying; in fact, I found her sitting up in bed, gasping for breath, literally snapping at the air, only uttering at intervals long strings of *blab, blab, blab, blab*. Afterwards complete aphonia ensued, lasting for some hours, and resisting musk, valerian, and other remedies, yielding, at last, the instant she was placed in a warm-bath. These symptoms, for which I could discover no exciting cause, continued with remissions for some days. The girl's sister, about a year older, was afterwards very similarly affected. I have known hysteria, in repeated accessions, though rarely, to last the greater part of a day. Chauffard mentions a blooming girl who became a complete fanatic, with sparing menstrual discharge and convulsive hysterical paroxysms, with hypogastric and pubic pains, lasting from four and twenty to thirty-six hours, lapsing into a kind of ecstasy, the patient raising then lowering her hands and muttering prayers, blood, at last, strange to say, oozing from the epigastrium. Parry mentions a case in which music was the theme of

the hysteric paroxysm. An English lord has described the case of an Italian girl who bears the designation of the *addolorata*, doubtless a case of hysteria. Hildenbrand relates an instance in which a girl became hysteric and lost her voice, from menstrual suppression consequent on fright. Sometimes chlorotic girls become hysterical. I have seen violent hysteria after cholera, also common fever. Conolly speaks of an hysteric cough actually bordering on pertussis: he mentions an instance, as does likewise Dugès, in which, from the failing pulse, coldness, and orthopnœa, the friends thought the patient was dying; and I once met a similar occurrence myself. Hydrophobia, so to speak, aphonia, and dysphagia, paralysis and tetanus even, not to mention catalepsy, occasionally ensue. Young women, as Conolly and Brachet mention, have been known to drop down insensible in church or in the street; a condition, however, rarely of long continuance. Retention of urine, requiring the catheter, is not at all uncommon; I have witnessed several instances: at other times, the anal sphincters are equally difficult to overcome.

The causes of hysteria are often very obscure; but certainly the grand predisposition is sex. As men, though rarely, are liable to a similar affection, it shows that hysteria is not merely a uterine affection. Not only all women, as Elliotson observes, but even men, at some time or other, are liable, more or less, to the hysteric passion, or mother, as that painter of human passion Shakspeare terms it. In many women, hysteria seems to become a regular morbid habit; and they even seem to induce it at pleasure. Some, on the occasion of a fright or hurt, lapse into it, and never perhaps experience it again. Quick excitable individuals appear more liable than others. I coincide with a judicious female friend, that strong-minded women are more exempt, though not entirely so. Madame Lachapelle, a woman of ardent feelings, though she controlled the disease in part, was, owing to frequent annoyances, a martyr to hysteria. The accessions sometimes lasted fifteen hours, with dysphagia, and epigastric pulsations, which an ignorant practitioner referred to aneurism of the cœliac artery. There is much in the passionate emotions of children of both sexes, and sometimes in feeble old men, that approximates to hysteria; it is, however, infinitely more common during the menstrual periods of the sex. Rullier relates the case of a girl, Alezi, who experienced menstrual suppression from fright. Pains ensued in the limbs and genitals, with sense of strangulation such as a collar might produce, and pharyngeal constriction, to so great an extent, that the patient was unable to swallow a particle of fluid. Convulsions persisted during the following day, the anxiety was extreme; and the unhappy creature, who retained full possession of her faculties, applied her hands every moment, as if to remove the fatal collar from her throat. She died in the evening, during one of the exacerbations. The lungs, though gorged with dark blood, were unaltered; the ovaries, filled with transparent vesicles, were large and firm.

There can be no doubt that hysteria is producible by organic, as well as mental causes; that these render each other reciprocally more influential; lastly, that susceptible individuals, persons who have had the disorder before, will be more readily affected again. The great error here is to assign one exclusive cause, when, in reality, several are at

work. Thus, Foville refers the disease to the uterus, Georget to the brain. Hysteria is the appanage of civilized life; I never saw or heard of anything of the kind among savages. It is mainly, I conceive, to be ascribed to the defective social and moral education which women receive, the shocks and injurious influences consequent on their imperfect social position; they have neither the bodily strength nor mental firmness which nature designs. The disease is principally met with among the richer classes; those who are subjected to the operation of a multitude of petty chagrins; daily immured in heated apartments; too often debarred from adequate mental, moral, and physical expansion; acted upon and stimulated in a thousand natural and unnatural directions; and hence a prey to hysteria. In fact, it seems a pathological law, that if body, mind, or both, be kept long in a state of tension or restraint, which no previous moral or physical training enables it duly to withstand, one or both give way, and convulsions, spasms, hysteria, or insanity, is the result. Married women, indeed, by the different duties of the menage, and the more wholesome direction given to their thoughts and feelings, enjoy comparative immunity. Nature designs us to live more in the open air, and to have our thoughts, feelings, and impulses exhausted to a healthy extent by rational intercourse with our fellows. If young females, sufficiently clothed, were habituated for hours to daily atmospheric exposure, so as to wear off the edge of their animal vivacity; if they perused works on history, travels, biography, natural history, and physics, in place of the trashy fictions poured out by the modern press; and if they spent a portion of their time in ministering to the wants of the necessitous, hysteria would become marvellously infrequent. In fact, many women, mentally speaking, are little better than children at the momentous period when puberty, with its giant passions and cravings, comes to agitate the frame. Men too early learn to vent their animal impulses; in women, though less imperious, they are unnaturally pent up. I do not, however, believe in the boundless etiological range which continental and home writers accord to restrained sexual desire; consequently, cannot accede to the opinion of Louyer Villermay, as expressed in his *Traité des Maladies Nerveuses*, as to the necessary production of hysteria, the hysteria libidinosa of Sauvages, when the *vœu de la nature*, as he phrases it, is not satisfied. Georget, and other French writers indeed, go so far as to speak of improper gratifications as a cause of hysteria in children. A not unfrequent source is fanaticism; here, as well as in America, its workings, so different from those of true religion, may sometimes be witnessed on an extended scale. Almost all the cases cited by Pomme, in his treatise on vaporous affections in the south of France, towards the close of the last century, were those of Ursuline or Carmelite nuns. Women, in a convulsive epidemic in Zealand, recorded by Whytt, jumped about like cats. The Anglesea visitation in 1796, described by Haygarth, and that by Boerhaave in the Haerlem workhouse, must have been hysteria. A dancing mania, probably of analogous character, subsisted in different parts of Europe during the middle ages. Out of nine cases by Louyer Villermay, three are referred to fright, two to blighted love, one to mental excitement, one to cold, and one to swinging. In those by Georget, thirteen came on from terror, seven from vexation, and one from opposition;

causes to which he would mainly ascribe the numerous cases which he has met with. Hysteria is the usual accompaniment of amenorrhœa from fright. Hysterical girls, as Raulin remarks, will be seized if they even suspect the presence of a cat, rat, or other disagreeable object. I have in such soon the most trifling circumstance bring on a paroxysm. Naumann conceives that there is an hereditary tendency, *erbliche Lage*: exaggerated womanishness—*gesteigerte Weiblichkeit*, is, I think, a very well imagined expression of his for the disease. Autenrieth would refer the disorder to indirect asthenia of the genitals, or general exhaustion—*Erschöpfung*, of the frame. Schönlein, in his *Vorlesungen*, thinks that a particular portion only of the nervous system is implicated; Baumgärtner, the nerves going to the sexual organs, the ganglions more especially of the lower belly: others, again, look to the sympathetic nerve, or the ganglions, which connect it with the cerebro-spinal system.

The diagnosis of hysteria is not so clear as to have prevented it from being confounded with other disorders, as hypochondriasis. Few, says Sydenham, except those who work and fare hardly, are quite free; sedentary men and students being particularly liable. Otherwise, he appears well acquainted with the complaint, which he terms one remarkable for its frequency, as well as resemblance to most distempers. For, wherever it be seated, it simulates the diseases of that part; if in the head, apoplexy and epilepsy; in the heart, palpitation; in the lungs, a perpetual dry cough; in the kidneys, stone; in the stomach, vomiting. Hoffmann adverts to the error of confounding hysteria with hypochondriasis; and proceeds to observe, that the latter is a tedious inveterate complaint, whereas the former often attacks pregnant or lying-in women, females full of blood, and virgins on stoppage of the menses; and this so suddenly, that they fall down bereft of sense and motion. Hypochondriasis, according to Joseph Frank, is most common between the thirtieth and fiftieth year—*inter vite annum trigesimum et quinquagesimum communis*. The patient, as Dubois d'Amiens observes, is fond of inspecting his organs and dejections, as well as of reading medical books, and conversing with medical men. Sometimes it is the brain, the lungs, or the stomach, which is at fault. Different diseased affections are simulated, and perhaps organic change eventually ensues. Hysteria, on the other hand, is almost exclusively confined to women; it reigns during the uterine period of life, is sudden in its onset, with motiveless tears, convulsive laughter, profound sighs, a sense as if a foreign body were in the throat, with suffocation, acute fixed pain in the head, savage cries, complete or partial loss of consciousness, and frightful convulsive efforts. I have known hysteria mistaken for epilepsy. Pinel relates that many of the women detained as epileptic, in the Salpêtrière, merely laboured under hysteria. The latter, however, does not display the bent thumbs, livid, distorted countenance, gibbering mouth, clenched jaws, bleeding tongue, and tonic convulsions, of the former; neither is it followed by sopor and total unconsciousness of the patient as to her situation. When Louyer Villermay, therefore, speaks of epileptic hysteria, and Georget of hysteria, lapsing into epilepsy, there is probably some misconception. *Clavus hystericus* may ensue in the forehead, occiput, or other portions of the cranium; it is sometimes so sudden and acute that the patient utters piercing screams.

I have known a girl of sixteen to utter appalling reiterated shrieks, and exclaim that she must die unless relieved. A young lady in a country village labouring under hysteric cephalalgia and dysphagia, had been freely bled and leeches, so that while the pain increased, she could not sit up without swooning, and apparently must have died were it not for opportune change of treatment. Pains in the mammæ sometimes lead young women to suspect cancer. I have witnessed acute hysteric sternalgia with delirium. Sometimes the xiphoid cartilage is acutely implicated. Pleuritic and cardiac inflammation is often suspected where there is nothing of the kind. Dugès mentions one young person who consulted him for pain in the costal cartilages of the right side; another for lancinating pains in the left hypochondrium, radiating over the surface, and terminating in an hysteric paroxysm. Hysteric rachialgia is common in every portion of the spine; and girls are thumped, percussed, scalded with hot sponges, and condemned to their couch, too often without a trace of local disease. Brodie affirms, that he has witnessed many instances in which young women were forced to adopt the horizontal posture, and tormented with setons and caustic issues for years, who would have been cured by air, exercise, and cheerful occupation, in a few months. Caries is rare; yet we every where hear of young ladies reputed to labour under spinal disease. Copland speaks of several cases of acute pain, in the sacrum and coccyx, very common in fact, which were greatly aggravated by depletion and low regimen, on the supposition of organic lesion. Sometimes we have hysteric colic, and abdominal pains simulating enteritis, with tympanitic distention, mistaken for ovarian dropsy. The parts may be freely pressed, though the patient shrink from slight contact; the skin is cool, and the pulse, probably, tranquil. Four-fifths of females in the upper classes, supposed to suffer under diseases of the joints, labour, according to Brodie, under hysteria, and nothing else. Sometimes it is the knee, sometimes the hip, or the ankle. In these affections, which may last months or years, the patient commonly keeps the joint extended, not contracted, as happens in articular disease. The muscles perhaps, waste from inaction, or, from long habit, assume particular attitudes; but the pain which may be considerable, is not deep-seated, but confined to the integuments. Georget mentions spasmodic retraction of the thigh actually treated by one of the first surgeons in Paris as spontaneous luxation of the femur, and, which yielded at last to gradual extension. The patient eventually died, but the hip-joint was free from every mark of disease.

The great thing in the treatment of hysteria is to remove, so far as may be, the exciting causes, and to strengthen body and mind against their casual or unavoidable influence. During the fit, it is expedient to have the patient surrounded with careful persons, so as to guard against the chance of bodily injury. Ligatures should be loosened and stays undone. Burnt feathers, woollen rags, and hartshorn are popular, but imperfect palliatives. I have known vesication and dangerous erosion of the nares and fauces induced by the incautious employment of ammonia. Elliotson says if the mouth be filled with salt, that it will arrest the fit. French practitioners speak well of cold water enemata, Copland of those containing turpentine. Valerian, assafoetida, and ammonia, with sulphuric, nitric, or muriatic ether, are often service-

able, at other times useless. Yet I have known the very smell of a mixture containing valerian, camphor, and assafœtida, to avert an expected paroxysm. In very plethoric persons, it may prove expedient to withdraw a few ounces of blood: active antiphlogistics, on the supposition of inflammation, have, it is to be feared, ruined many constitutions otherwise unimpaired. In the event of amenorrhœa or chlorosis, we must be governed accordingly. Dugès mentions periodic hysteric pertussis successfully removed by quinine. Laurel-water and the acetate of morphia have been employed to relieve excessive dyspnœa. In costal pain, particularly of the left side, galbanum and ammoniacal plasters, or those consisting of soap and the muriate of ammonia, have been resorted to. In chronic cases, Conolly prefers tartar-emetic ointment, Copland hot flannels sprinkled with turpentine. Possibly acupuncture might prove serviceable. In abdominal and arthritic hysteria, turpentine epithems, or those composed of the compound camphor liniment, answer pretty well; some, however, prefer the belladonna plaster. Local or general detractions are inadmissible in cerebral hysteria, very plethoric subjects perhaps, excepted; anemic individuals, require judicious stimuli, meat, wine, and iron. The head and temples may be bathed with aromatic liniments; while the bowels, if necessary, should be well cleared out. Elliotson illustrates the striking utility of a couple ounces turpentine, in a girl twenty-four hours comatose, who had been bled to the extent of thirty ounces, and purged with salts and senna. I have succeeded, by dint of patience, in inducing persons to eat who had previously seemed to labour under invincible dysphagia. In the way of a prophylactic, there is nothing like constant occupation of body and mind. All sorts of exercise in the open air, gardening, riding, and walking, are desirable. The sleeping apartment should be airy and well ventilated; the bed, a mattress or spring cushion. The shower-bath is excellent. Works which appeal to the reason are here infinitely preferable to those which only address the imagination. Books exclusively written for the young, are usually flat, stale, weary, and unprofitable. The discipline that makes a man good, is usually fitted to render a woman so; and productions that fostered the mental faculties of a Roland or a Barbauld would equally suffice for others of their sex. If we had more Rolands, we should have fewer hysteric females, alike unfitted to act as wives, mothers, daughters, or in the other relations of life.

CLASS VI.

DISEASES OF THE ABSORBENT SYSTEM.

I.—STRUMA, SCROFULA, EVIL.

SCROFULA is not so much the name of one, as of a multitude of diseases, or rather modifications of disease. Many labour under its indoles in whom the malady has never openly manifested itself. The disposition, indeed, occasionally runs through families, some of which may never evince serofulous affections. The complexion, hair, and eyes, though often otherwise, are commonly light, the lips and eyelids tumid, with thickening of the *alæ* and septum of the nose, occasionally of the lobes and external meatus of the ear; superficial veins run near the surface, while the complexion is ruddy and mottled. Many of the worst cases of scrofula that I have seen, occurred in dark-haired, dark-complexioned persons; and if more frequent in the opposite, it is merely, I conceive, because such constitute the great majority. A few, when heated by exercise, even emit a certain odour, to which the term strumous might be applied. It is absurd to ascribe superior intellect to serofulous persons, as such; though, when we consider the wide range of the disease, intelligence and mental acumen must obviously abound. Struma comes from *struo*, to heap up; some, however, refer it to *ruma*, the mamma. Serophula is from *scrophæ*; the Greeks termed it *χοιβάδες*, from *χοῖρος*, both meaning a swine. The German word *Kropf*, or crop, also applies, but oftener to goitre; the French term is *écrouelles*.

Symptoms vary with the seat of the disease, as the surface, internal organs, joints, synovial membrane, bones, muscles, and lymphatic glands, are implicated. It rarely commences, so to speak, after puberty; generally by the tenth, eleventh, and twelfth years. The lymphatic, not the salivary glands, it has been said, are primarily affected; external inspection, at least, would often seem to declare the contrary. When the swelling, as often happens, commences with the parotid, serofulous parotitis, the gland progressively enlarges, and after a period of months, it may be years, softens, points, and, unless this be anticipated, spontaneously opens, and evacuates flakes of a white curdy matter, mixed with thin pus and serum. The opening lapses into a common serofulous ulcer, while the peculiar discharge continues until the swelling subsides, when it at length heals up, leaving a puckered cicatrix. I have seen several instances in which the subcutaneous cellular tissue under the chin was affected, greatly elongating the countenance. In other respects, scrofula appears as a superficial affection, implicating different points of the cutaneous surface, forming tubercu-

lar and other elevations, very well described by Rayer. Some indeed are of opinion, that lupus, porrigo, and eczema are of the strumous family. Whether the glandular swellings, as Cumin thinks, often observed in the neck when eruptions of this description affect the scalp, be of a scrofulous character, it would not be easy to determine. Scrofulous tubercles may be developed in every region, but are most frequent on the face, neck, and upper extremities, and vary in size from a grain of barley to a pea or olive. They may appear in the vicinity of scrofulous ulcers, and remain long stationary, Rayer has seen them after leech bites; at other times, ulcers ensue with a pale fungous aspect, and violet margins. The disease, however, in other respects, may primarily affect the hands, wrists, elbows, knees, ankles, and other joints. Scrofulous antritis of the knee is very common. I saw numerous instances in the Hôtel Dieu, as well as elsewhere. It was at one time supposed that the bone was always enlarged, but Crowther has shewn that this is not the case. He admits, however, that the disease may subsist primarily in the osseous structure, or extend to it from the articular surfaces. Here, the ligaments may be thickened, the cartilages absorbed, and the bone exposed. The soft parts also participate, fluid is effused; lastly, distention, inflammation, and ulceration, with perhaps burrowing sinuses, ensue. I have witnessed the latter, however, even when the joints were not affected: in one case, burrowing sinuses, discharging matter, subsisted in the whole interval between the hip and the knee of both extremities; in another, a succession of large abscesses formed beside the knees, hips, and back. Often the smaller joints, as those of the fingers, are surrounded with a red, painful, circumscribed swelling of variable dimensions, which eventually ulcerates, discharging sanious cheesy matter. I have witnessed the amputation of fingers in this condition by Boyer, and have repeatedly met with scrofulous ulcers with puffy tumid margins, often proceeding to exposure of the bone and caries, in the elbow, wrist, os calcis, astragalus, maxillary, and metacarpal bones. The hip and shoulder, the former more especially, also the spine, may be implicated. Hectic ensues when the large joints are engaged, less frequently with the small. Some recover maimed and crippled, but there is such degeneration in others, as to render this impossible. I shall always remember the case of a dark-complexioned lad, whose neck, back, wrists, elbows, and ankles, were alike seared and ulcerated. His hands were miserably distorted, and he was otherwise lame and crippled. Puberty, which affords relief to most, brought none to him; and he perished at length a pitiable object of human decay. Scrofulous otitis, ophthalmia, and tonsillitis—or otitis, ophthalmia, and tonsillitis, modified by scrofula, are common occurrences. Cumin thinks that scrofulous œzena, apart from syphilis or mercury, may ensue from tuberculous deposits in the pituitary membrane; just as Dupuy has demonstrated their occurrence in the specific equine affection termed glanders. Independent of the structures already named, the mesenteric glands, less frequently the lacteal, undergo scrofulous conversion. Some conceive that psoas and lumbar abscess is of strumous character; it is certainly most frequent in strumous subjects.

Bronchocele, goitre, or Derbyshire neck, endemic in the Himalaya, and, according to Bramley, other parts of India, is common in certain districts of England, the Valais, and Tyrol. In the village of St. Jean

de Maurienne, eighty in the hundred labour under it. In Guatemala it is even said to extend to the inferior animals. The tumour, seated at the fore part of the neck, arises from hypertrophy of the thyroid gland. It may be three or four times as large as the fist; Alibert and others have actually known it to descend to the thigh. Essentially of a chronic nature, instances are recorded of its attaining its term within the space of two months. Women are everywhere singularly more prone to the disease than men. Pregnancy favours its development, and cases are recorded in which it was only perceptible at this period. The voice, as Peter Frank remarks, is sometimes reduced to a kind of croak; at others, hearing and swallowing are impaired; while pressure on the jugulars, by retarding the return of blood, renders the face red or livid, and may even entail fatal consequences. Goitre, the struma lymphatica of Walther, is of a cellular or multilocular structure, containing a clear, serous, or viscid fluid; sometimes the enlargement seems purely vascular. Goitre may undergo scirrhus or ossous degeneration; in other respects, it must not be confounded with mere obesity, melicerous tumours, carotid aneurism, scrofulous enlargement of the glands in the neck, or hernia trachealis in which the lining of the air-tube has been forced out by coughing or puerperal efforts. It has been ascribed to the use of selenitic and snow water; Richardson, however, states that those who drank snow water on the polar sea escaped, while those who consumed river water were attacked. There is probably some endemic influence, however, if it could be detected. An abode in ill-lighted, ill-ventilated valleys, together with inferior clothing, food, and nourishment, seems a powerfully exciting cause. We find the disease in the gorges of the Valais and Vosges, but, according to Saussure, not towards the mountain summits. Bronchocele, however, is not confined to Alpine regions; it is met with in the plains of Lombardy and Milan: Ferrus states its occurrence near Soissons, and even at St. Denis, near Paris. I have met with it occasionally among the Irish poor. In a few instances, goitre disappears spontaneously, as it has also been known to do from the exhibition of iodine, or substances, as burnt sponge, or cod-liver oil, which contain it. Manson of Nottingham has been successful with an embrocation composed of a drachm of the tincture, mixed with an ounce of common soap liniment. Coindet directs a tincture containing forty grains of iodine in an ounce of alcohol, of which ten drops and upwards are to be given thrice daily, in some aromatic vehicle. Brera recommends iodine in pills made up with elder rob and liquorice powder: Gairdner prefers the iodide of potassium or hydriodate of potash, for internal use. Iodine was once so abused, people having been poisoned by its incautious administration, as to call for repressive interference on the part of the Swiss government. Bromine, a mineral discovered in sea-water by Balard, possesses, according to Barthez, in the twenty-second volume of *Froriep's Notizen*, similar powers. Mercury, however, has succeeded where iodine has failed. Bronchocele has been removed by the knife; and though, according to Walther, occasionally successful, this dangerous procedure, any more than setons or caustic, should never be resorted to. In all cases the patient, if possible, should leave the endemic locality.

Many of the considerations already alleged with regard to tubercle, apply equally to the cognate affection, scrofula. Though not al-

ways, perhaps, hereditary, we must admit with Alison that it is very frequently so. The strumous temperament seems oftener developed in women than men: Lepelletier de la Sarthe, indeed, in his *Traité sur la mal Scrophuleuse*, affirms that the proportion is as five to three. This peculiarity I would ascribe to the inferior physical education of females, who live in-doors, and, consequently, more in a vitiated atmosphere; take less exercise in the open air, often consume inferior food, and wear deficient clothing. The causes of scrofula, irrespective of sex and hereditary temperament, appear to be cold and moisture, united with inferior or insufficient food and clothing, gloom and depression, inadequate exercise in the open air and in the sun's light. I have no doubt that struma may be, and often is developed in young persons who are born with no particular tendency to the disease. The greater the predisposition, however, the more readily will exciting causes operate. I have carefully inspected the young inmates of different charitable establishments in London, Dublin, and Edinburgh, as well as in many provincial towns, and have been struck with the pale, flabby, waxen aspect which, to a greater or less extent, prevailed among them all. Lloyd dwells on the influence of cold with other causes. Lepelletier mainly ascribes the disease to perverted assimilation, previous or concurrent ill health, bad air, bad food, and imperfect excretions. Jolly sides with this writer, as to the etiolation with pale and flabby integuments, soft flesh, and pallid aspect, ensuing from the privation of light. Baudelocque ascribes so much influence to foul and imperfectly-renewed air, as to esteem it the leading and almost exclusive source of scrofula. Struma is common in Russia and Poland, in mountain gorges and Alpine vallies, in England, Ireland, and Scotland—in fine, all over Europe. Mackintosh goes so far as to allege its occasional occurrence in some one member of every family. The strumous cachexy is not met with in warm climates; I never saw it in Africa, nor, indeed, among the American aborigines. Natives of such, however, whether man or brute, become liable to scrofulous deposits, enlarged glands, with fatal mesenteric and pulmonary tuberculization, so soon as they proceed to colder regions. Electricity being less freely developed in the latter than the former, Humboldt would attach some importance to its diminished influence on the human frame. Baudelocque dwells on the absurdity of referring scrofula to syphilis. The offspring of persons, however, whose constitutions have been impaired by the joint operation of syphilis and mercury, will doubtless be so much the more prone to scrofula. Wiseman, and more recently Jolly, conceive that the milk of scrofulous nurses, by furnishing materials hurtful or insufficient to nutrition, predisposes to the disease. Rearing by hand or the sucking-bottle, as well as unduly prolonged lactation, is hurtful. The greater prevalence of the disease in large towns and among a dense ill-fed population, is matter of notoriety. I have too often witnessed little children among the Irish town poor, sallow, ragged, dirty, ill-fed, with glandular swellings running down their necks and jaws; and which I could not but ascribe to the miserable destitution and privations of all kinds, amid which they were fated to dwell. Indeed their houses, as well as their persons, sordid with dirt and penury, emit a peculiar heavy odour which revolts the senses and sickens the heart. I have elsewhere adverted to the production of tubercles in the brute.

when exposed to injurious physical agents. Edwards found that the spawn of frogs, immersed in boxes deep in the Seine, merely grew into monstrous tadpoles, shewing that reptiles, even, are not developed when air and light are excluded. The *proteus anguinus* described by Humphrey Davy in the caves of Carinthia, is possibly some abortive species. Monstrous births, it appears, are frequent in the miserable occupants of cellars under the fortress of Lille. Conception during the menstrual period is an imaginary source of scrofula. Scarlatina, rubeola, variola, pertussis, and infantile diseases generally, occasionally develop the scrofulous diathesis. Childhood itself, a period during which the lymphatic system is unusually active, along with insufficient food, air, and clothing, is an exciting cause. Actual struma, as Lloyd observes, should not be confounded with mere predisposition. Scrofula, though its real nature be not easily defined, would seem a vice of nutrition and something more. The subjects are not necessarily anemic; many of them, indeed, are comparatively robust. Labillardière, chemical manipulator at Alfort, affirms that there is seven times as much phosphate of lime in the milk of cows labouring under tubercle, as in that of others. How far a similar peculiarity obtains, under equal circumstances, in other races, is unknown. The sweat and urine are said to be more acid in strumous than other subjects. Scrofula and tubercle, it has been alleged, are identical, and, doubtless, they are mainly so. Tubercles, however, are found in every portion of the human frame, and by no means confined, any more than scrofula itself, to the lymphatic system. Strumous persons, says Jolly, frequently reach the last term of emaciation, without presenting symptoms of tuberculization; the latter, again, may ensue without any concomitant scrofulous outbreak. Scrofula is mostly confined to children below puberty, whereas tubercles attack those who have passed this period, preferring the interval between twenty and thirty-five. If subcutaneous tubercle, otherwise scrofula, however, be most common in childhood, so is tuberculization of the mesenteric glands; secondly, the lungs are not unfrequently tuberculous in children; thirdly, tubercles occur oftenest in scrofulous subjects, and scrofula in tuberculous ones. It is not necessary that scrofula and tubercle should be alike developed in the same individuals; but the diathesis is certainly more or less convertible. I knew one light-haired family, in whom three sisters died of phthisis, while the fourth escaped with scrofula in the neck, the strumous temperament being alike conspicuous in all. In another, and I might instance many such, with dark complexions, one perished of strumous arthritis in the knee-joint; another laboured under chronic otitis with loss of the ossicula, also fatal; while a third expectorated tuberculous and cretaceous matter, and still lives.

The predisposition to scrofula may be lessened or weakened, but is difficult or impossible to remove. The great thing is to prevent any overt manifestation. This, perhaps, is often possible, but the successful treatment of actual scrofula is wholly problematical. Once tuberculous deposits have ensued beneath the cutaneous surface, in the meninges, joints, mesenteric glands, or lungs, we may faintly palliate, but too often must fail to cure. Every scrofulously disposed child, weather permitting, should live a great deal in the open air. The apartments ought to be well ventilated, avoiding undue coolness on the one hand, and

stifling warmth on the other. Children should not sleep in closets or chimneyless rooms, or with curtains to the bed. A mattress or spring cushion, otherwise fresh oaten straw, is greatly preferable to feathers. Night air should be shunned as poison. Cold is rarely contracted during active exercise; and even if a wetting be incurred, the danger is neutralized when the clothes are changed on coming home. Overdread, on this score, in a changeable climate like this, goes far to prevent exercise altogether. Garments should be warm and light; a flannel shirt worn next the skin, or with cotton interposed, is much superior to heavy muffling. In the event of slight rain or cold weather, a light great coat or pelisse is sufficient for walking; passive exercise demands warmer covering. Flannel is worn when the mischief is done; but the serious thoracic affections which complicate measles and hooping-cough, the frequent pneumonic and bronchitic attacks, too often paving the way for pulmonary tuberculization, would often be prevented by having earlier recourse to it. I entertain the highest opinion of the efficacy of daily cold tepid sponging, followed by active friction on getting out of bed in the morning. Nourishment should be plain and light. Those who have the charge of children, parents and others, sometimes forget that what is eaten should be relished. Food nutritive and agreeable, will suffice in smaller quantities than that which is heavy and innutritious, or at least not relished, and from which the palate and stomach revolt. Superior bread, light puddings, recent well-cooked vegetables, may constitute the bulk of the ingesta; but a little sound fresh meat, eggs, and milk, should be super-added. Exclusive farinaceous food, unless very judiciously ordered, may disagree; every child, however, should have good bread and new-milk at discretion. I incline to think that fresh well-baked wheaten bread, made of sound wheat from which neither bran nor flour has been removed, would be best. Variety, however, is necessary; above all, exercise in the open air. Children fed in the cheerless precincts of work-houses become pallid and scrofulous on nutriment, which, if not the best, the cottager's family would not only live but thrive on. With air, exercise, temperance, cleanliness, and cheerfulness, comparatively inferior fare will prove nutritious and strengthening; without them, the most superior often only ministers to diseased repletion. Thus it is that the offspring of the poor, who live and play constantly in the open air, consuming only farinaceous food and milk, inferior, perhaps, of their kind, enjoy vigour, health, and bloom; while those of the rich, with all the appliances and means that wealth and luxury can procure, perhaps realize none of these essentials.

Even in a therapeutic point of view, hygienic measures are most important. After them, I confess that I would attach little value to such remedies as the chlorides of barium and calcium, iodine, or arsenic. Lugol's cases are certainly strong, but I have tried iodine and other remedies in every form, without deriving the slightest advantage. The great thing is to attend to the general health, and regulate the digestive organs, often much at fault. Gentle alterative aperients, the carbonates of soda and potash, with rhubarb or calumbo, alternated with iron, will often prove expedient. Mercury with chalk is the only form of this mineral to which I ever would resort: mercury as a sialogue, is out of the question. Gentle exercise, walking and riding in

the open air, and, more especially, the sea-shore, are often exceedingly serviceable. Bathing in the sea, once or twice a week, and a summer residence in the vicinity, are of extraordinary utility, improving the general health, and strengthening the constitution against further ravages of the disorder. I have seen glandular enlargements which resisted every other remedy, disfiguring the neck and jaws, and apparently advancing to inevitable suppuration, yield to this. Frictions by a professed rubber, which I have known continued for months, are useless. When the tumour points, an early opening should be made with the point of a lancet: adhesive reunion, however, very imperfectly ensues; a puckered cicatrix is almost inevitable. Certain French practitioners have proposed and practised the removal of the latter so as to leave a hardly perceptible linear cicatrix in the direction of the folds of the neck, in its place.

II—LYMPHATITIS, BARBADOES LEG.

ACUTE lymphatitis, the angio-leucitis of Velpeau, is rather a rare affection. I met with it in a coloured lad from Barbadoes, marked by hot skin, quick pulse, redness and swelling about the left malleolus and dorsum of the right foot, with pain and soreness extending in the direction of the tense, red, inflamed lymphatic, along the inside of the leg and thigh, as high as the groin, where sympathetic bubo had formed. The latter did not suppurate, but an abscess filled with thin pus ensued about the ankle. The patient was then seized with obstinate diarrhoea, which brought him to death's door. After a considerable interval, he experienced another attack, abscess forming in the sole of the foot. Ollivier says that inflammation is most frequent when the deep-seated lymphatics are implicated. I have known lymphatitis of the arm followed by suppuration in the axilla. Sömerring has seen lymphatic vessels red and inflamed, about the greater angle of the eye. The same writer speaks of traumatic lymphatitis after wounds in the thorax. Andral once witnessed traces of lymphatitis in the superficial lymphatics of the lungs. A more frequent occurrence after lesions of the lymphatics, whether after wounds or ordinary venesection, is effusion of the contents. This, which may ensue to a considerable extent, and is difficult to arrest, being diminished by pressure below, aggravated by pressure above, has been adverted to by Haller, Van Swieten, Nuck, and others. Assalini mentions having seen the discharge of five pounds of lymph in the course of three days, from a small wound on the inner part of the thigh. In gonorrhoea, the inflamed lymphatic may sometimes be seen running along the dorsum of the penis to the corresponding gland in the groin. Lymphatitis commonly follows in the train of cancer, encephaloma, and melanosis. It may also, as every one knows, arise from cold applied to the feet, the irritation of corns, and from wounds or punctures in any of the extremities; also from poisonous impregnation, cutaneous diseases generally, ulcers, abscesses, chilblains, chancres, in fine, lesions of every variety. It is a frequent concomitant of that form of phlebitis which receives the name of phlegmasia alba dolens; likewise uterine phlebitis or metro-peritonitis. In

this case, according to Cruveilhier, inflamed lymphatic vessels, distended with pus, are seen on the surface of the peritoneum, whether on the anterior or posterior parieties of the uterus. They are rarely met with in the substance of the viscus, but run along the margin of this organ, with the ovarian veins, in the broad ligaments; and are sometimes so distended at the angles of the uterus or elsewhere, as, according to this writer and Gendrin, to wear the aspect of abscesses, from which, however, they are distinguished by their smooth internal surface and the presence of valves. The number of suppurating vessels is variable; they have occasionally been found obliterated by layers of coagulable lymph. In a few rare instances, according to Andral, Gendrin and Tonnellé, the thoracic duct itself has been seen implicated. Neuritis and neuralgia are distinguishable from lymphatitis by pain radiating as if from a centre in the former, as well as the absence of tension, redness, and soreness in the region of the suspected vessel. In erysipelas, which some, I conceive erroneously, would ascribe to inflammation of the superficial lymphatics, the redness is more uniform, the course more rapid, and the termination in suppuration less frequent than in lymphatitis. In erythema nodosum, the inflamed points are well marked and of a deeper hue; they are, moreover, prominent, and distributed more generally over the surface. The lymphatic vessels are further liable to chronic inflammation, to varicose dilatation, tuberculization, and cancerous degeneration. Gentle aperients, warm-baths, and, so far as the patient's strength will permit, local and general depletion, are the means to be resorted to in acute lymphatitis. Incisions are not expedient, unless in case of purulent deposits, which, of course, must be evacuated. Compression has been tried in the first stages of the disorder, also after the opening of abscesses, with advantage. Velpeau has found mercurial frictions occasionally useful.

Inflammation of the lymphatic glands or ganglions is, on the whole, more frequent than that of the vessels themselves, with which, however, it is often conjoined. In some cases, the cellular structure, in others, the lymphatic convolutions only are affected, with destruction, more or less complete, of the peculiar glandular structure. Ganglionitis may be acute or chronic, common or specific. In the chronic form, suppuration, unless acute inflammation supervene, seldom occurs. As Gendrin observes, though suppuration be frequent, resolution is likewise more so than what is supposed. Ecchymosis or bloody effusion commonly ensues, communicating a dense red aspect to the inflamed gland. Inflammation of the lymphatic glands varies in character with that of the diseases which happen to occasion it. Thus, not to speak of tuberculous, cancerous, and melanotic degeneration, we may have scrofulous, gonorrhœal, and syphilitic buboes, pestilential buboes, as occurring in plague, and buboes from the poison of malignant anthrax and glanders, as derived from the brute. Glanders, primarily, appears a specific inflammation of the nasal passages of the horse, afterwards attended with tuberculous deposition in the mucous lining, lungs, and under the skin; in this last case, termed farcy. The secreted matter is capable, on contact, of infecting the horse, ass, and the human subject. The disorder is directly communicable by application to the Schneiderian or pituitary membrane, or by inoculation in any other part of the body, running up the absorbent, affecting the conti-

guous lymphatic glands, entailing general febrile disturbance, delirium, and death. In a recent example at Paris, an interne at one of the hospitals contracted the disease from merely dissecting a man who had died of it. Here, it is alleged, there was no abrasion. Phlebitis, in some instances, may have been mistaken for this complaint. In one of Elliotson's cases, a profusion of deep yellow, tenacious mucus exuded from each nostril. Many have since been recorded in the periodicals both here and on the continent. In these, the disease ensued in the acute form, and was uniformly fatal. Glanders in the brute is usually chronic, and always incurable. In case of any suspected animal, the matter should be inoculated into an ass, and if the disease re-ensue, both should be destroyed. Sufficient care, indeed, is not taken in handling animals labouring under this deadly complaint, or to protect and warn those who have charge of them.

The swelled leg of Barbadoes, elephantiasis or elephant leg of Arabian writers, is by some, as Alard, thought to result from chronic inflammation of the absorbents; while others, as Rayer, Bouillaud, and Gaide, refer it to local phlebitis. The disease, essentially chronic in character, is marked by distention and hypertrophy of the cellular tissue, with atrophy of the subjacent muscles. Elephantiasis, though much less frequently, may affect not only the leg, but the arm, neck, head, breast, face, belly, back, scrotum, penis, and labia. Scott has known it to affect both legs as well as both arms. Alard saw the upper extremities engaged in four instances; in one of them, the arm weighed two hundred pounds. Delpech mentions its occurrence in the abdomen of a girl. I saw a tumour possibly of this description, the size of a large pot, below the umbilicus of an old woman. A tubercular affection of the face, termed elephantiasis of the Greeks, as also lepra, was long confounded with the present affection; and conversely. Barbadoes leg is said to commence suddenly, with acute pain in the course of the lymphatics, in the seat of which a hard tense cord interrupted by nodosities, may be felt stretching towards the neighbouring ganglions in the groin or arm-pit, with fever and an erysipelatous blush over the surface. These attacks come on in accessions, which, as Scott and Henden have shewn, may ensue repeatedly in the course of one year, or it may be, once in several years. After each, more or less swelling and tension remain, at first soft, afterwards resisting pressure of the finger; eventually, however, becoming hard and discoloured. The skin, in some cases, is covered with scales, in others, is affected with clefts or crevices from which a slight exudation issues. In the event of ulceration, however, an offensive ichorous sanies is discharged. The islands of Ceylon and Barbadoes, both in the torrid zone, are the principal localities of the disease. I saw two well-marked examples of it in this country; when I say so, I do not advert to mere thickening and swelling of the cellular tissue between the calf and ankle, not unfrequently induced, almost exclusively in females, by continued cold and exposure. Sarcocoele, so termed by Larrey, or elephantiasis of the testicle, is common in Egypt; several cases, however, have been treated in the French hospitals. It occurs to a minor extent at Sierra-Leone, the natives ascribing it to abuse of palm-wine; and I have been informed by an eye-witness that it is common in Rio-de-Janeiro. One of the most remarkable instances on record is that of Hoo Loo, a

Chinese, who came to London to be operated on. Scott mentions a mendicant at Point-de-Galle in Ceylon, in whom the scrotum was enlarged and swollen to that degree, that the man could sit on it. Henty mentions instances in which the disease disappeared spontaneously. It does not seem inimical to life; but may be termed incurable. Delmas, however, practised amputation of the arm with success at Montpellier; while Larrey removed the scrotum, Tahrich the labia, and Nägele the leg, with fortunate results. Compression in the hands of Alard, compression, scarification, and local bleeding, as employed by Lisfranc and Rayer, appear to have been useful.

III—RABIES, HYDROPHOBIA.

THIS disease, the *Hundswuth* or *Wasserscheu* of the Germans, appears to have been known to the ancients under the term *λυσσα*. It originates spontaneously in the dog, and its congeners the wolf and fox, and once formed, is communicable by inoculation, to all animals, whether herbivorous or carnivorous. Hydrophobia or water-dread may occur as a symptom in other diseases, as hysteria, but it is a marked feature in the malady under consideration. The patient on raising a vessel containing any fluid to his lips finds he cannot swallow; and that a painful, choking, spasmodic sensation ensues whenever he attempts to drink. Sometimes, as in the case of the Duke of Richmond, this is first awakened by attempting to wash. The bare recollection of the act of swallowing has served to induce the spasm, as will, also, a current of air; hence some propose the term *pantophobia*. In one poor man who had been bitten six weeks previously in the lip, blowing in his face at once induced a paroxysm. He could swallow, however, with a gulp, as one taking a nauseous medicine. Seemingly unaware of the nature of the disease, his spirits, strange to say, were unaffected at the time I saw him, a couple or three days before his death. Dogs, also, have been known to drink. Elliotson describes a sudden deep inspiration or catching of the breath, ever pathognomonic of the disease, and always absent in those who only fancy they labour under it. There are commonly great restlessness and uneasiness, but reason is rarely impaired; and dogs, even, are sometimes, though I have known the contrary, fain to caress those to whom they are attached. I knew one person, a respectable nursery-man, who was bitten by his own dog; and who, aware of his situation, met the approach of death with edifying tranquillity. We can very well conceive, however, that weak-minded nervous persons may become delirious, and even attempt to howl and bite; in fact, the very dread of hydrophobia constitutes a species of insanity. Attempts to hawk up inspissated mucus from the parched fauces, appear to have been mistaken for barking. I found the pulse slow and regular, but it is apt to become rapid towards the close.

The period of incubation is variable—days, weeks, months, and even years have been alleged. Six weeks are, probably, near the mark. The duration of the complaint, also, may be from a few days, or even less, to a week. Of persons bitten by really rabid dogs, it has been

calculated, what from the virus being cleansed away by the clothes or by successive bites, that not more than one in twenty contracts the disease. The nature and origin of rabies are wholly unknown. The fact of dogs not perspiring by the skin, and some sexual anomaly, are supposed to be connected, but this is hypothetical. We know no cause besides actual inoculation, which some, however, have gone so far as to deny. A writer in the *Westminster Review* ascribed all the symptoms to tetanus. As for appearances after death, notwithstanding alleged pustules under the tongue by Salvatori and Marochetti, redness in the larynx, œsophagus, and theca of the spine by others, they are wholly nugatory. The poisonous virus communicated through the absorbents, implicates the whole frame, and leading to an error of assimilation, by which the venom is created anew, induces a condition incompatible with the continuance of life. In a thesis by Bushnout, Paris 1814, it is recorded that a lady, after excessive grief for the death of her husband, was unable to swallow without pain. The symptoms became aggravated, well-marked water-dread ensued, and she died completely exhausted on the fifth day. Her dog, which, during her illness, had often licked her mouth, became rabid a fortnight after, and died in four days. Pinel mentions a timid young officer who died hydrophobic, owing to his comrades having entered his room at night, with drums beating, assuring him that the enemy was at hand. A case of spontaneous hydrophobia is related in the *Journal des Sçavans* for 1757. In Hufeland and Osann's *Journal der Practischen Heilkunde* for December 1833, an innkeeper, it is alleged, became rabid and died after being bitten by a dog which had never been ill. Dr. Herrmann knew the animal and saw him drink. The unhappy patient howled and cried, then bit his mother in the cheek, whom, along with his sisters, he had besought to keep out of his way. A short time after he was found dead, his face buried in the clothes. A fatal case, headed *Merkwürdiger Fall einer problematischen Hydrophobie*, is related in the same journal for February, 1834. The patient, however, had been bitten seven years previously. Other instances of spontaneous, and even intermittent hydrophobia, are described by authors. Dupuy of Alfort could not induce the disease in cows and sheep when the incisions were rubbed with sponges bitten by rabid animals of the same species; if by rabid dogs, however, the result was otherwise. Magendie and Breschet, in 1813, inoculated dogs with the salivary of a hydrophobic patient, and thus kept up the infection throughout the summer. About forty days intervened before the communicated disease manifested itself. Some dogs, however, appear insusceptible, since there was one at Charenton which thirty rabid animals were made to bite, at various intervals, without effect, in succession.

The treatment of rabies canina has hitherto proved unsuccessful: once the disease has fairly set in, it invariably proceeds, one or two alleged examples to the contrary notwithstanding, to a fatal termination. Remedies, however, as the anagallis arvensis, Ormskirk medicine, and mercury pushed to salivation, have acquired a certain vogue, merely, I conceive from the circumstance that only a few of those who are bitten contract the disorder. Cupping-glasses have been advised, but the knife is infinitely preferable. Let the part be washed, then freely excised and as freely cauterized with the potential, or even the

actual cautery. That nearest at hand, is the one to be selected; otherwise, fused potash, a pencil of the nitrate of silver, the mineral acids, ammonia, or the chloride of antimony, may, any of them, be resorted to. In fact, if the bite be in a finger or other extremity, only that the mind revolts, it would be almost justifiable to amputate; at any rate, free excision with active cauterization, is immediately to be had recourse to. Even this does not always save. Elliotson mentions a patient who had only to cross the street to have the part excised, and yet the disease appeared at the usual period. Hydrophobic patients have been submitted to every species of torturing medication, bled and half drowned, but to no purpose. Roche injected water into the veins in three instances, but this, as in others, was followed by no success. He mentions a case in which the preliminary symptoms were apparently subdued by having recourse to the vapour-bath. Buisson, a Parisian practitioner, it is recorded by Pinel, having, at her own request, bled a woman labouring under hydrophobia, who died some hours after, unwittingly cleansed the blood off his fingers, one of which was sore, with a towel which had served to wipe the patient's mouth. Nine days after, pain ensued in the throat and finger; water, of which the aspect excited painful sensations, was swallowed with extreme difficulty; and the unhappy man, believing that he laboured under hydrophobia, entered a vapour-bath with the intention of suffocating himself, but came out whole. It is further stated, if we can credit this writer's narrative, that eighty hydrophobic persons were thus freed from their complaint, with the exception of a child of seven that died in the bath. Opening and cauterization of the pretended pustules under the tongue, are illusory. Tracheotomy has been performed with no better result. Undoubtedly, prevention is best. There must be some error of canine regimen. I never witnessed the disease in Africa, nor does it appear in the icy regions of the North. If people must keep dogs, the animals should be properly washed, fed, and supplied with water. They should receive sufficient exercise, be permitted free access to the fields to eat grass, as well as sexual commerce with their kind. Bull-baiting and dog-fights ought to be stringently repressed, with which precautions the disease would probably become comparatively unfrequent, if not wholly extinct. Huntsmen always isolate suspected animals, so that the disease rarely extends in kennels, still more rarely are the keepers implicated.

CLASS VII.

DISEASES OF THE ORGANS OF RELATION.

I—PUSTULAR ERUPTIONS.

α. ECTHYMA is a non-contagious inflammatory affection, characterized by large prominent phlyzaceous pustules on a hard, circular, bright red base. The term is derived from *ἐκθύμα*, pustule, a designation employed by Hippocrates. In the acute form, eethyma vulgare, the disease is rare; and begins with hard, painful, conoidal elevations, usually on the neck, shoulders, or lower extremities, more rarely the face or hairy scalp, varying in size from a pea to a lentil, or even larger. Unlike those of variola, the pustules are not umbilicated. Rayer compares the pain, which is of a lancinating character, to that which ensues in shingles. The adjacent lymphatic glands occasionally sympathize. Crusts of variable thickness form, which, falling off in a week or so, leave a cicatrix, oftener a deep red spot. If, in successive crops, the disease may persist for months. Any preursory fever subsides soon after the coming out of the eruption. Cazenave and Schedel say it is most common in spring and summer, Bielt in autumn and winter. Plumbe observed it oftenest in temperate young men; but it is met with in adults, pregnant women, and others, after, it is said, fatigue, exposure, errors of diet, and mental depression. The etiology of this and other cutaneous affections, however, is often very obscure. Applications containing tartar emetic, or croton oil, induce pseudo-pustules, resembling eethyma. Those who handle sugar and lime are subject to this eruption in the hands; it may complicate the acute stage of lichen, prurigo, and scabies, as well as ensue during convalescence, from scarlatina, rubeola, and, more especially, variola. Eethyma infantile, as seen in badly-nursed infants, or those of feeble constitutions, is sometimes followed by ulcerations, which leave a persistent cicatrix. Eethyma luridum, as also eethyma cachecticum, are modifications, varying with the inferior health and stamina of the individual who happens to be affected. Eethyma syphiliticum is one of the Protean aspects of syphilis: I have seen it extend over the whole surface, with coppery areolæ. Pustules of eethyma are much larger than those of impetigo, acne, or porrigo; those of acne are further evolved on indurated, rather than inflamed bases.

Rupia, from *ῥύπος*, sordes or ordure, was included by Willan under the head of eethyma, from which Bateman thought proper to separate it. The latter, however, admits with Bielt, that it may in some cases be esteemed a variety of eethyma cachecticum. Plumbe, indeed,

questions the pustularity of ecthyma, a view which he conceives would establish additional analogy with rupia. Cazenave and Schedel have seen pustules of ecthyma when numerous, approximate so closely as to give rise to bullæ large as a half-crown, followed by crusts from dried pus, in all respects the counterpart of rupia. The latter usually commences with a watery, afterwards sero-purulent ampulla, followed by limpet-shaped crusts, well represented in Bateman and Rayer's plates. The outer layers are detached by sero-purulent effusion; the central portions less readily. When the scabs fall off, the true skin is excoriated, or even ulcerated. In the event of cicatrization, the skin retains a livid hue; but new scabs may form and fall off in prolonged succession. I have witnessed the eruption on the legs and thighs, in a syphilitic case on the trunk. It does not follow, however, that eruptions which come in the train of venereal, should necessarily prove syphilitic. Plumbe, indeed, mentions an instance of rupia proeminens in a syphilitic patient, which mercury only served to aggravate. Rayer speaks of a poor scrofulous child in whom three flattened bullæ filled with bloody serum were evolved on the right leg; also an emaciated water-carrier in whom ecthyma, rupia, and petechiæ, were combined. Rupia simplex and rupia proeminens are terms which demand no particular explanation. As for rupia escharotica its consideration comes more fitly under the head of pemphigus gangrenosus. Circumstances productive of rupia are said to be youth, cold, hardship, and preceding eruptive diseases.

As regards treatment, Biett judiciously observes, that it cannot be established on a rational basis without due regard to the general habit and constitution of the patient. It may be said to reside in a judicious empiricism, changing one remedy for another or a combination of others, till we discover that which answers best. If the patient be dirty, or addicted to intemperance—if the digestive functions be at fault, or the alvine discharges irregular, the indication is not less obvious with regard to ecthyma in particular, than cutaneous affections generally. Young, vigorous, plethoric subjects will be the better of depletion, low diet, and diluents; but the weak, debilitated, and asthenic—from age, misery, or privation, require wine, iron, and the vegetable tonics, as well as a liberal allowance of nutritious food. Warm or tepid baths, plain or medicated with gelatin, salt, carbonate of soda, or the sulphate of iron, will be advisable. Sea-bathing is often indicated. Should sores ensue after the crusts fall off, we may find it necessary to apply the nitrate of silver, or water acidulated with nitric or muriatic acid. Thomson speaks well of an ointment composed of half a drachm of the acetate of lead, three drachms of prussic acid, and three ounces of spermaceti ointment. Biett employs washes of the chloride of lime, or powders the ulcers with cream of tartar. Dendy recommends a linseed poultice, also poppy-head decoction. Green removed ecthyma from a gentleman whom it had plagued for years, by means of sulphur fumigations. I have found a cup of spirits burnt under the chair to form a very good succedaneum for a hot-air or vapour-bath; the patient being duly enveloped in blankets. Pounded brimstone, if desirable, may be readily introduced, in a porringer of burning charcoal, or on a heated iron plate. A mass of iron, also, thirty or forty pounds weight, heated to redness, and placed in a metal box, sufficiently elevated from the floor, and partly filled with fine sand, answers very well. Should

chronic ecthyma affect a child at the breast, it may be well to change the milk. The local and general treatment of rupia is much the same as for ecthyma; and, should the strength be impaired, the patient may require meat and wine before any thing else. Lint is a sufficient dressing when the bullæ discharge. Painful ulcers may be bathed with the decoction of mallows; or, if tedious and indolent, Rayer recommends a wash of wine and water, or the parts to be dusted with cream of tartar.

β. Willan was the first to give an exact description of impetigo, a tolerably frequent affection named scaly tetter in the vernacular. The disorder referred to under the term impetigines by Pliny, would seem matter of uncertainty. It has been divided into varieties, as regards the seat and as relates to the form. Impetigo figurata presents itself in oval or circular patches, with a rose-coloured base, consisting of minute confluent psudraeous pustules, attended with more or less itching, smarting, and slightly elevated above the surface. Sometimes the intervening skin becomes intensely red, constituting impetigo erysipelatodes, with more or less fever. Impetigo figurata, popularly termed ringworm, occurs in circular patches on the face and elsewhere. The irritation may decline with more or less desquamation in the centre, but continue at the circumference. Its common duration is three or four weeks; but, in the chronic form, it lasts months and years. Ordinary impetigo of the face begins with small, red, distinct spots, perhaps bounded to the eyelids, with more or less ophthalmia and follicular inflammation; sometimes extending to the upper lip, or alæ of the nose, forming conical crusts which Alibert compares to stalactites—*dartre crustacée stalactiforme*. Of this last, I witnessed an obstinate case in a scrofulous girl, the crusts extending some way up the nostrils; indeed, struma and amenorrhœa are considered unfavourable complications by Rayer. The morbid process may extend to the subcutaneous cellular tissue, with successive crusts, ending, if improper or irritating applications be resorted to, in superficial excoriations and fissures, constituting impetigo rodens, otherwise rare. This is probably the third of the four species of Celsus—*tertia etiamnum deterior est, et durior, et magis tumet; in summa cute finditur, et vehementius rodit*. Porrigo larvalis, so named by Willis and Bateman, the crusta lactea of some authors, the tinea mucosa of Alibert, and tooth-rash of Armstrong, *Milchschorfe* of the Germans—common in children at the breast, has received from Cazenave and Schedel the much more appropriate designation of impetigo larvalis. This affection, innocent in reality, though so formidable in aspect, exhibiting greenish, yellow crusts, with more or less pain, itching, swelling of the adjacent lymphatic glands, and even irritation of the eyes, ears, and nose, may last many months. I have witnessed it, however, in scrofulous children, apart from the slightest impairment of general health, the eyes shining out blue, clear, and unaffected. Porrigo favosa, otherwise tinea granulosa or mucosa, the *Kopfgrind* of the Germans, occurring in children six or eight years old, and apt to prove chronic, is merely impetigo sparsa or granulata of the scalp. Here the elementary lesion has received from Willan the designation of aches, after all, identical with the psudraeous pustules of impetigo. Pustules, each traversed by a hair, are followed by isolated, greyish, irregular crusts, with considerable itching and inflammation. These drying up, not unlike lumps of mortar, cause the hair to be

slightly matted, but are easily detached. The disease is not productive of alopecia, and is wholly uncommunicable. In neglected cases, a disagreeable smell exhales, and the part, if permitted, becomes a nidus for lice. Impetigo sparsa affects the legs, generally the outside; the crusts are yellow and lamellar, but not so large as in impetigo figurata. In persons advanced in life, and broken down in constitution, the crusts become dark and thick, impetigo scabida, with heat and itching often intolerable, of the parts. Impetigo of the upper extremities, usually confined to the fore-arm, is less severe than in the lower. Plumbe, however, met with it on the back of the hand and beneath the fingers, the motions of which were rendered painful by intervening scabs and pustules. Gibert, in his *Traité Pratique des Maladies de la Peau*, mentions an elderly man in whom the disease commenced in the loins, then extended to the thighs and upper extremities, which were covered with thick yellow crusts. The patient also harassed by a severe thoracic affection, suffered greatly from pruritus and insomnia; and though he received the best attentions in the hospital St. Louis, eventually sunk. I have known impetigo to ensue under the influence of a salt-fish diet and bad digestion; dentition doubtless operates in infancy. The smallness, brief duration, and conglomerated psudaceous aspect of the pustules, readily distinguish impetigo from ecthyma, as well as from other eruptions with which it may be combined. Impetigo on the chin displays characters very different from those of sycosis or mentagra.

Plumbe strongly recommends frequent ablutions with warm water, and removal of the diseased secretions, rejecting all greasy applications, and keeping the parts moist with oiled silk, or linen dipped in a dilute solution of the acetate of lead. Thompson speaks well of a lotion containing three drachms of prussic acid, seven and a half ounces of distilled water, and half an ounce of proof spirit. Rayet and Cazenave have found a weak solution of the nitrate of silver, or sulphate of copper, also dilute muriatic acid, of service. Gibert mentions an ointment composed of half a drachm of the sulphuret of mercury, ten grains of camphor, and an ounce of simple cerate, as a useful application in impetigo of the eye-brows. Medicated baths are in great favour at St. Louis; Green enlarges on their utility, and further concurs with Bielt, as to the employment in inveterate cases, of Fowler or Pearson's arsenical solution. The latter often prescribes a pint of veal broth containing two drachms of the sulphate of soda daily, three vapour-baths weekly, and every morning a couple of scruples or so of a powder containing an ounce of sulphur, and half an ounce of cream of tartar, or the same quantity of the subcarbonate of soda. In other respects, the waters of Enghein, Bonnes, Barèges, and Cotterets, in France, those of Harrogate or Moffat, nearer home, with a regulated regimen, are often expedient. In the scrofulous girl to whom I adverted, fast as the disease was removed from one point, the crusts returned in another. The general health however was good, and perhaps the eruption served as a sort of preservative against phthisis, of which her sister had rapidly perished. Rayet mentions a lady in whom impetigo of the face returned with each pregnancy, resisting every mode of treatment, but disappearing spontaneously after confinement. In an obstinate case of impetigo with oedema of the extremity, in a plethoric subject, I have obtained success

by keeping the leg up, regulating the bowels, and greatly restricting the amount of food. Relative to *impetigo figurata*, I have little particular to observe. *Impetigo larvalis*, beyond strict attention to regimen, the bowels, and tepid lotions of milk and water, had better be let alone. Rayer has known its suppression attended with unfavourable results. In fact, it disappears spontaneously to the great delight of parents and relatives, leaving no trace behind. In *impetigo granulata* of the scalp, the hair must be clipped close, and perfect cleanliness observed.

γ. Acne is a psudracious eruption, consisting of pustules of moderate dimensions, often separated by livid areolæ, more or less indurated at their base, and extending over the nose, cheeks, forehead, chin, neck, and, in some instances, the upper portions of the trunk. This affection appears to have been the *αχνη*, *συχωσις*, and *ῥονθος*, of the Greeks; the *varus* and *ficus* of the Romans; more recently, the *rosa* of Chiarugi; the *gutta rosea* of Darwin; and *dartre pustuleuse* of Alibert. Acne simplex, acne punctata, and acne disseminata, assume the form of scattered red spots over the parts above named, coming on successively, without heat or pain. Inflammation and suppuration take place slowly; and about the end of a fortnight, the tops of the pustules grow thin, tear off, and are again covered with a thin crust, formed from the inspissated sero-purulent excretion. Many of these, the *tannes* of the French, on the face more especially, come to wear a blackish aspect; and, if pressed, give issue to a concrete sebaceous matter, not unlike a small maggot, which, by the people, it is firmly believed to be, and which has served to originate the terms *acne sebacea*, *crinones*, or *grubs*. In acne indurata the pustules are large, numerous, and, as the name denotes, indurated; the sebaceous follicles and cellular tissue also are more deeply implicated. Here the pustules are apt to leave livid persistent traces, and indurations resembling cicatrices. The face is the most usual seat; but they may affect the back, interscapular spaces, and even the scrotum. I have seen them cover the backs of young persons of both sexes; and they sometimes occur on the breasts of parties unaware of their existence behind. Acne is common in girls, and rarely proves troublesome; but when it occurs in adults, hard livers more especially, we have an eruption of scattered red points on the nose and cheeks, acne rosacca, or *couperose* of the French, with pain and tension increased at meals, and after taking strong drink. In a short time these points extend, unite, grow pustular, multiply, and succeed each other in indefinite succession; the cutaneous surface becomes red and injected, which, with the swollen venous twigs, alters and deforms the expression of the countenance. Sycosis or mentagra is merely acne of the chin, aggravated, however, by the presence of the beard. Its evolution is attended with considerable heat and tension, pustules, each traversed by a hair, being found about the third day. Between the fifth and seventh, they burst, shrink, and are covered with a brownish crust. When pustules are thrown out repeatedly in the same place, inflammation extends to the subcutaneous cellular tissue, inducing disfiguring tubercles. Pliny gives a picture, apparently much exaggerated, of the ravages of this disease; it is also adverted to by Celsus—*est etiam ulcus, quod a fici similitudine συχωσις a Græcis nominatur*. Sycosis may be confined to the upper lip, sometimes extending to the roots of the hair in the nape of the neck, occasionally inducing

lapse of the beard, which is not always reproduced. It rarely lasts more than two months unless it become chronic, in which case it may persist for years. It is distinguished from furuncle, by the central slough or core presented by the latter. Acne is doubtless, produced by inflammation, more or less acute, of the sebaceous follicles. In a man who died labouring under acne rosacea of the nose and cheeks, Gendrin found the cutis thick and dense, while on the surface of the incisions there were small round red bodies, consisting of the sebaceous crypts or follicles, enlarged to double their usual size. As acne, like other cutaneous affections, varies considerably with its seat and duration, certain dermatologists, looking to its pustular origin, arrange it accordingly; while others, merely adverting to the resulting tubercles or vari, would place it under the head of tubercles. I have witnessed numerous cases of tuberculous acne in gross-living young men. It is always exaggerated by errors of regimen, excess, and even by remaining in a heated apartment. The French allege a connexion between acne and amenorrhœa, which I have not had occasion to witness; they further aver the greater frequency of acne rosacea in the sex. As for mentagra, it is exclusively met with in men, those of rough scraggy beards in particular. Acne is uncontagious; but Foville speaks of insane persons in the asylum at Rouen having contracted mentagra from being shaved with a foul razor. In one well-marked instance which came before me, in other respects referable to no particular source, the complaint was greatly aggravated by shaving. Alibert mentions having traced it through four generations. Acne, on the whole most frequent in, though not confined to, persons of foul, greasy complexions, never occurs in infants or children.

Acne demands cleanliness, exercise, attention to the digestive, and if needs be, the uterine functions. Young women are anxious to employ repereussives, but such should never be sanctioned. Nitrate of silver, or other counter-irritants, are rarely advisable; in syccosis especially, such are productive of fresh aggravation. Leeches in the neighbourhood of the affected parts, and in plethoric subjects venesection, with aperients and abstinence, may prove expedient. Sulphur baths have been found useful; but cold bathing is more commonly appropriate. In syccosis, the hair must be clipped with a pair of scissors, and the parts occasionally bathed with tepid milk and water: I have found a poultice of bread and milk useful. In chronic cases, and when tubercles, notwithstanding emollient applications, persist for weeks, Rayer would have the affected parts well rubbed with salve, in which the proto-nitrate, deutoxide, or proto-chloride of mercury was an ingredient. He has also obtained success by means of ointments, with a basis of sulphur and hydriodate of potash. Gibert mentions cures from the exhibition of the muriate of gold, or arseniate of iron, internally. I may here observe, once for all, with regard to acne as other cutaneous eruptions, that if we have reason to suspect a syphilitic taint, we must regulate our measures accordingly. It by no means follows, however, that a patient is to be subjected to a course of mercury, merely because he may have experienced syphilis at some anterior period.

δ. I now arrive at the consideration of porrigo or favus, otherwise tinea capitis, or scalled head. The Greek, as well as Roman and Arabian physicians, appear to have been acquainted with this disease.

It is described by Avicenna, and in later times by Rndius, Mercurialis, and Guy de Chauliac, who admitted five species reduced by Paré to three. Willan went so far as to enumerate six; porrigo larvalis, however, is but impetigo of the face, as porrigo favosa is impetigo of the scalp; porrigo furfurans is pityriasis, while porrigo decalvans applies to any form of alopecia; so that but two remain, porrigo scutulata, and porrigo lupinosa, essentially the same. Porrigo lupinosa, the favus dispersus of Rayer, favus urceolaris of Alibert, begins in the form of minute, yellow, itchy pustules or points, imbedded in the skin, no ways elevated, and displaying a very adherent crust, depressed in the centre, and often traversed by a hair. The crusts at first small, if allowed to remain, gradually increase, from two to three lines to an inch or even more in diameter; according to Bielt, with central depressions like those presented by lupine seeds, honey-comb tops, or the capsules of certain lichens. Even when the scabs or crusts run together, this characteristic is never wanting. A recent porriginous crust, removed so as to prevent effusion of blood, presents a round nipple-shaped elevation, with a corresponding depression in the skin beneath, which, if no fresh scab be formed, is removed without any trace of cicatrix. In other respects, it is difficult to displace them without entailing more or less pain, bleeding, and excoriation. The crusts become friable, decay, and crumble away not unlike rotten mortar, or a substance resembling sulphur; the bulbs of the hair inflame, while the hair itself becomes thin, dry, and falls out spontaneously or on being touched; at the same time, the original characters of the disease are less distinctly marked. It is curious that the morbid growth will be arrested in a part the hair disappearing, but on its return, and it never displays its pristine colour, firmness, and tenacity, the disease may react the same part, and so on in indefinite succession. In other cases, the surface becomes smooth and shining, while permanent alopecia results. All writers have noticed the peculiar nauseous odour, compared to that of cats or mice, which the affected parts emit. Such are the itching and irritation, to which pediculi when present greatly add, that children experience a sort of delirious pleasure in lacerating the scalp with their nails; while the pustules are torn open, and the sound parts inoculated with the disease. The lymphatic glands of the neck swell, and small abscesses perchance form in the cellular tissue. Indeed I have witnessed frightful instances of neglect, in which the disease had invaded the greater part of the hairy scalp, with heaps of rank-smelling scabs, infested with lice, purulent collections between the pericranium and skull, with inflamed, suppurating absorbent glands. Rayer and others advert to inflammation of the periosteum and bones, with ulceration and abscess of the subcutaneous cellular tissue, and even caries. Porrigo scutulata, favus confertus of Rayer, and favus squarrosus of Alibert, so named on account of the rugged irregular aspect of the crusts, merely differs from favus dispersus by the annular disposition of the scabs, giving rise to the popular designation of ring-worm of the scalp. Nummular porrigo, or tinea annularis, is said to be less severe, less frequently inducing alopecia, and commonly confined to the summit of the head. In other respects, the crusts present the characteristic depressions, while the course of the disease in every essential is the same. Both forms may present themselves on the trunk and extremities, but

are very much more frequent on the head, so that their presence elsewhere may be considered exceptional. Children are by far the most frequent subjects. I have oftenest met with porrigo in scrofulous individuals, those especially of impaired constitutions. Hairs penetrating the centres of the pustules or crusts, Baudelocque and others, esteem conclusive as to the fact of the disease originating in the piliferous bulbs or follicles, a doctrine which Plumbe esteems erroneous. A recent writer, grounding his hypothesis on microscopic investigation, has gone so far as to refer the disease to the presence of a cryptogamic plant. Porrigo of the trunk and extremities, according to Rayer, is seldom attended with any inflammatory affection of the skin; and, unless inoculated by accident, rarely complicates other cutaneous diseases. He has recorded impetigo of the leg, however, with a porriginous crust outside. Cazenave and Schedel saw the disease on the shoulders, elbows, fore-arm, knees, outside of the legs, and scrotum: Rayer has met with it on the cheeks and chin exclusively. Alibert goes so far as to deny the contagion of porrigo; and certainly, as Plumbe observes, it may, by conversion into mere local irritation, lose the power of communication. I have witnessed its propagation in consequence of wearing an infected cap. Willan knew a child to communicate it to fifty others in the course of a month; and Guersent saw its extension to a dozen in a boarding-house, from a diseased subject furtively introduced. Rayer mentions a woman who experienced the complaint in the arm from supporting the head of an infected child; also a little boy whose mother and two sisters contracted porriginous pustules in the fingers, after washing his head. Gibert beheld repeated instances in the wards at St. Louis of individuals who contracted porrigo in consequence of using the combs, caps, or bonnets of those who laboured under it. He mentions young people who had got it by kissing; also a man who acquired it in his legs and arms from a wig, which, coming off in the night, was usually found in contact with these parts. In other respects, it ensues spontaneously, or from causes we are unable to appreciate. It is quite incorrect to suppose that porrigo has any direct deteriorating influence on the mental faculties; the health, however, is apt to be impaired by its long continuance.

The diagnosis from other cutaneous affections has already been sufficiently adverted to. Trichoma or plica Polonica indeed, has been conceived to have some analogy with porrigo. Without going so far as Ollenroth, in some observations on *Weichselzopf* in the *Medicinische Zeitung*, who conceives that while tinea is commonly local, plica is generally preceded by constitutional derangement; it may be observed that this peculiar affection of the hair not only of the head, but of the axilla and pubis, with discharge of glutinous matter from its roots and alteration of the nails, is endemic in Sarmatia, sometimes extending to the inferior animals, in every class, at all ages, and in both sexes. The piliferous follicles becoming diseased would seem to originate this morbid growth. The complaint, less frequent than formerly, occurs principally among the poor. Dirt, the neglect of combing and washing the hair, swarms of vermin, and doubtless some secret endemic influence, to which Ollenroth adds, that of a raw, cold, wet climate, small, dark, unequally-heated, smoky dwellings, inferior clothing, bedding, and nourishment, are, doubtless, among the sources of this malady. The hair

is felted, and, as it were, glued together, plica multiformis, plica caudiformis, and occasionally attains enormous length. On the pubis it has been known to constitute an impediment to parturition. Malcz of Warsaw mentions a lady in whom a phthisical affection was apparently removed by the supervention of trichoma. It has also appeared beneficial in paralytic and other affections. When plica becomes habitual with copious discharge, it is reasonable to suppose that its removal without precaution, might, in some cases, induce serious results. There can be little danger, however, in the generality of instances, in cutting off the hair, and employing soap and water, with such other measures as cleanliness dictates.

Rigid cleanliness, in the next place taking from the infected matter the power of propagation, lastly, depilation, are leading considerations in the treatment of tinea. The parts must be frequently washed, and the different morbid excretions removed; since, as Plumbe well observes, negligence, and filthy habits have undoubted influence in nursing and promoting cutaneous complaints. The parts may be bathed night and morning with tepid milk and water, and a little soap, employing the softest sponges and towels. We may, probably, refer the cures wrought by tar or sulphur ointment, those by the nitrates of mercury and silver, astringent solutions, those by tartrate of antimony and the alcalies, the mineral acids, sinapisms and blisters, to the change produced in the action of the parts, averting the formation of the specific secretion. As the disorder is almost *suro* to disappear when the hair, whether from the course of the disease or human intervention, falls out, depilation with cleanliness and regimen, supersedes every other means. Too often in former days, partial baldness was the price of recovery: *unde*, says Lorry, *a tinea bene curata semper sequitur calvities*. The pitch-cap, *calotte* of the French, composed of barleymeal, vinegar, verdegris, blended over a fire with pitch, and other matters, spread on strong linen, applied weekly, and pulled off in sections, at the same time tearing off the hair and scabs with great pain, was the barbarous method resorted to. Mahon affirms that he saw a child die after it; and I witnessed fatal inflammation of the brain in a girl of eleven, supervening shortly after its employment by an empiric. Plumbe found removal of the loose hair by tweezers to answer very well; but the procedure of the brothers Mahon takes precedence of every other. The hair is cut off, so as to leave it about two inches long; poultices are then applied for four or five days, and the parts washed with soap and water. A depilatory ointment is now applied every second day, combing the hair twice or thrice on alternate days, with a small tooth-comb. When this has been continued for a fortnight, a depilatory powder is strewn in the hair once a week, next day the comb is employed, then the ointment as before. After six weeks, another ointment and a stronger powder are resorted to, the comb previously dipped in oil and not pressed too hard, on the intervening days. These depilatories, as Chevallier has shown, derive their efficacy from the subcarbonate of potash and lime; hence we may employ three drachms or so of the subcarbonate of soda or potash, two drachms of slaked lime, with ten grains of levigated charcoal and two ounces of lard. For the powder, chalk, magnesia, or charcoal may replace the lard. Alibert, after the poultices, and soap and water lotions,

preferred the daily application of an ointment composed of soda and the sulphuret of potash, each three drachms, levigated with three ounces of lard, afterwards covering the parts with blotting paper. A more active preparation is Plenck's powder, composed of quick lime twelve, starch ten ounces, and yellow sulphuret of arsenic one ounce. A portion reduced to a paste with water is applied to the affected parts, and washed off when dry. Depilatory applications have been immemorially resorted to in the East. The rusma, so termed, was composed of two ounces quicklime, orpiment four drachms, boiled down in a pound of alkaline ley. These last, however, being potent caustics, are hardly suitable in porrigo. I have had recourse to depilation, which is infinitely the best procedure, but from the irregular attendance of the patients, not to my satisfaction; I have, however, been successful with other measures, as the ointment or solution of tartrate of antimony, citron ointment, or the solution of nitrate of silver, clipping the hair, and extreme cleanliness. It appears, according to Rayer, from 1807 to 1813, that nine hundred boys and girls were treated by the depilatory method at the *Bureau central des hôpitaux*, and cured on an average of fifty-five dressings. Unless where the piliferous follicles were destroyed, the hair always grew afresh after the artificial alopecia; neither did it induce any alteration in the scalp. The Mahons were successful with numbers that had been vainly treated by means of the pitch-cap, manganese, and charcoal, for months and years, at the Val-de-Grâce, Dames St. Thomas, Hôpital des Enfants, St. Louis, and other hospitals. The efficacy of the depilatory method, therefore, is incontestable. In other respects, we must regulate the diet of the little patients whose strength is often sadly impaired by long-continued neglect and an improperly debilitating regimen. I can recommend a combination of mercury and chalk, with rhubarb and the powder of gentian or columba, when requisite, as a useful alterative and aperient.

II—VESICULAR ERUPTIONS.

a. HEAT, smarting, and itching, precede the eruption of eczema simplex, itself composed of numerous minute vesicles, transparent under the magnifier, on a rose-coloured basis. These terminate by absorption of their contents, or are succeeded by slight moist excoriations, alternating with thin scales and fresh crops of vesicles. This, the herpes squamosus madidans of Alibert, was sometimes esteemed a scaly, sometimes a vesicular eruption, according to the period in which it was surveyed. We are indebted to Willan for the precise signification now attached to the term; It is usually local, but may extend over a considerable surface. Lavain speaks of its occurrence in circular patches the size of a half-crown piece, bearing resemblance to herpes preputialis. Successive crops may arise in the same, or simultaneously in different spots, sometimes with considerable constitutional fever and disturbance. Eczema rubrum, as the name denotes, is attended with increased redness and inflammation. The skin, rough to the touch, is covered with a crowd of little vesicles, which, in a few days, become large as a pin's

head, and filled with a lactescent serum. Repeated epidermoid layers and laminated yellow crusts form, with apthæ, perhaps from irritation, extending to the mouth, nostrils, and, it has been alleged, the intestines. The effused fluid, which exhales a disagreeable odour, seems further to excoriate the surface, especially at the flexures of the joints, a situation in which I have found it to prove very annoying to children. Similar remarks may be passed with regard to eezema impetiginodes; severe when it attacks the trunk and extremities. Here the vesicles gradually assume a pustular aspect, comparable to those of impetigo, following the analogy of varicella, in which the eruption, vesicular in the first instance, may become pustular in the last. Much, however, depends on the amount of inflammation and individual peculiarities; in fact, the different varieties are convertible, and run into each other by insensible gradations. Here, however, vesicles, pustules, scabs, and scales, may be seen on the same individual. Attacks may succeed each other for months and years. I was consulted in the case of a lady, martyr to the disease. Attack followed attack, the skin, on each occasion, exfoliating with sero-purulent exudation, painful itching, and great distress, from head to foot. The itching is not always urgent, but sometimes it is extreme, nay intolerable, flashing, as it were, on the slightest occasion, over the surface, with a strange admixture of pleasure and pain. The patient cannot refrain from scratching; and it is not till torn and bleeding that his torment is quelled. In inveterate cases, the skin is further cracked and excoriated, with copious exudation, and such distress that the patient knows neither comfort nor rest. It may even, it has been alleged, prove fatal. Eczema may implicate, not merely the trunk and extremities, but the scalp, ears, lips, face, neck, breast, nipples, armpits, groins, anus, scrotum, vulva, and urethra, with mixed sensations at once singular and distressing. Biett mentions a lady whose eyelids were drawn up in consequence of this affection, so as to cause her countenance to assume the aspect of a Chinese. The backs of the hands, wrists, fingers, and matrices of the nails, may alone be engaged: the latter, with the hair, have even been known to fall out and be replaced. Hemorrhagic clefts have been witnessed in the penis after painful erections. The contiguous lymphatic glands, in some, undergo sympathetic pain and swelling. Eczema has been known to alternate, it is said, with neuralgic, gastric, and cardiac affections. Biett observed the subsidence of epilepsy concurrently with the coming on of eezema, which lasted fifteen years; on the other hand, Alibert witnessed insanity after the disappearance of the eruption; and Gibert avers that several young men came to labour under hemoptysis and other phthisical symptoms apparently from the same cause. Biett has also seen the combination of eezema with syphilitic tubercle, itch, lichen, sycosis, and elephantiasis. Eczema is uncontagious; it has been brought on by irritating lotions and ointments, exposure before fires and furnaces, and the sun's rays, eezema solare. It is occasionally induced by mercury, eezema mercuriale; Green has known it from the ingestion of sulphur, Dendy from that of cubebs. The constitutional causes are unknown; when such, however, operate, relapses are more frequent. Rayer finds the disease most common in scrofulous subjects, in whom it has induced ophthalmia and otarrhœal affections. Eczema of the hairy scalp some-

times termed *tinea amientacea*, may last for years. Small pieces of epidermis, pierced with clusters of hair, assume an iridescent appearance. Pediculi, if permitted, swarm, the child scratches his head with avidity, while the lymphatic glands enlarge. When the head is cleansed by poultices, a cheesy-looking matter exudes. At first, vesicular and humid, afterwards squamous and furfuraceous, the eruption altogether differs from the cup-like scabs of *porrigo* proper. Children labouring under eczema of the scalp rarely incur diarrhœa or convulsions, even when teething; and if their recovery prove slow and natural, may enjoy very good health. Eczema of the face has been mistaken for *crusta lactea* or *impetigo larvalis*; but unless in the case of eczema *impetiginodes*, these affections are very dissimilar. The anatomical seat of eczema has not been well determined; Bielt repudiates its connexion with the sebaceous follicles.

Mild eczema demands little interference; attention to the bowels, light diet, tepid lotions or the bath, plain or medicated with a few ounces of the subcarbonate of soda or potash and gelatin, will prove serviceable. The patient should be enjoined to avoid scratching; with children, means may be employed to prevent it. In extreme cases, small doses of opium serve to quiet irritation and pruritus. Obstinate forms of the disease, however susceptible of mitigation, will sometimes baffle the skill and patience of the practitioner: here, as Rayer observes, regimen, rest, and time, are capital adjuncts in the treatment. I have found strict cleanliness, with tartar-emetic lotions, useful in eczema of the scalp; I have, also, ventured with success on the nitrate of silver, when the eruption was confined to the flexure of a joint or outlet of the nostril: should the affection extend higher up, emollient injections will be expedient. Some have recommended an ointment composed of ten or twenty grains of the protiodide or deutiodide of mercury to an ounce of lard. Citron ointment, also, has been resorted to. Bielt, however, is against caustic applications in any case. In local eczema, leeches and blisters to the adjacent parts have done good. In case of the nipples, however, a solution of the acetate of lead has been found to answer. Cazenave and Schedel speak well of an ointment composed of a scruple of calomel in a drachm of lard. The nipples must be further guarded by caps, wallnuts, or limpet shells. In obstinate cases, Bielt and Rayer recommend the arseniate of soda or ammonia. The former has employed it, without inconvenience, for twenty years, in St. Louis; but the latter advises patients, unless their sufferings be intolerable, to forego the use of a medicine, which, if not dangerous, rarely prevents the return of the disorder a month or two after its discontinuance. The latter has further met with several cases of eczema which proved rebellious to remedies till the patients consented to lay themselves up. Should constitutional derangement follow cessation of the eruption, it may be well to establish an artificial drain.

β. Herpes, popularly tetter and ring-worm, refers to clusters of hard, transparent, globular vesicles; varying in size from a millet seed to a pea, and standing on a red inflamed base. The term, from *εἰσπναι*, to creep, was once indifferently applied to a great variety of cutaneous eruptions; but first restricted by Willan to the one under consideration. The groups may be one or several; and occupy several points, as the trunk, extremities, axilla, ears, simultaneously, or in succession.

In this last case, it may persist for a considerable period, otherwise the ordinary duration is not more than seven or eight days, or about three weeks, to the falling off of the crusts. The eruption is attended with considerable heat, itching, and sometimes deep-seated pain. A few vesicles apart, the skin in the intervals of the patches is free from all morbid alteration. The contents of the vesicles, clear at first, afterwards become turbid, if not purulent, and drying up, furnish greenish, yellowish, or blackish crusts. When these fall off, the skin, perhaps a little excoriated and injected, as well as covered with small branny scales, gradually regains its natural aspect. Any general indisposition subsides on the coming out of the vesicles. Sometimes these are confluent: and Rayer has seen bullæ nearly the size of a half-crown on the scrotum, which, but for the collateral groups, might have been mistaken. One of the designations of the disease is herpes phlyctenoides, for which Rayer would substitute herpes miliaris. Herpes zoster, zona, or shingles, the ignis sacer of ancient writers, affects one or other side of the abdomen; in a very few instances both: rarely the thorax, and still more rarely the extremities. The band or girdle is formed of agglomerated groups of vesicles of variable size. In zona of the thorax, additional groups sometimes rise on the shoulder, and unite with the belt below; zona of the abdomen also is sometimes joined by groups from the thigh. Marcus saw it extend over the whole side. Rayer has observed gangrene in the skin covered by vesicles on the posterior surface of the trunk. The people in England have a notion, that when shingles, perhaps from *cingulum*, meet, the patient dies, which I need not say is incorrect. Rayer mentions inflammation of the mastoid lymphatic glands in zona of the neck: it may attack the face, and extend to the mouth, or even the hairy scalp. This writer has seen it confined to one side of the penis, scrotum, anus, or groin. Gibert speaks of its lasting months and years. Perpendicular zona, or parallel to the limb's axis, has been witnessed. Herpes labialis is generally confined to the outer angle of the mouth, but I have known it stretch over the whole chin; and Cazenave describes it as extending over the cheeks and alæ of the nose. It is common after constitutional disturbance, as periodic fever. Herpes of the prepuce may implicate the outer or inner surface, or both, with more or less itching and scalding. When inflammation gains the deep-seated layers, the prepuce becomes subject to hacks and lacerations; the outlet grows narrow, impedes the discharge of urine, while coitus becomes painful or impracticable.

Herpes preputialis, also herpes vulvæ, is readily distinguished from syphilis, by the presence and circular arrangement of the vesicles, and superficial excoriations, very unlike chancre. Herpes circinatus, varying in size from a shilling to a crown, commonly circular, rarely oval, popularly the ring-worm, appears on the cheeks, chin, neck, breast, or one arm, in all which situations I have met with it. Vesicles are absent in the centre, while they are smaller than in the other forms of herpes. Should this affection become chronic, the circles are covered with branny scales, a few vesicles occasionally appearing at the borders. When the rings happen to run together, it might be mistaken for eczema; portions of circles, however, will be visible at the circumference, while the vesicles are much larger. The circles of lichen circumscriptus are larger, while the elementary lesion is a papula. Circles

of lepra, in the absence of their scales, will be distinguished by the history of the case, their greater persistence, as well as by the concomitance of the disorder in other parts of the body. In herpes iris, the rings of different hues are small and concentric: it has been met with on the backs and palms of the hands, ankles, and fingers, and is excessively rare. The causes of herpes, the hydroa febrilis excepted, are unknown: I witnessed the immediate sequence of zona in an usher after bathing when heated. Rayer saw it attack the same person several times in the course of seven or eight years. Herpes circinatus is most common in females and children. Zona has been alleged critical in vertigo and pleurisy. The disease in every form is uncontagious. When herpes runs its course promptly, treatment of any kind seems superfluous. Persons labouring under zoster have been purged and even bled; corrosive applications, though they have been tried, are unsuitable. Cazenave mentions a young girl in whom an indelible circular cicatrix was produced by caustic to the forehead. The nitrate of silver, however, may be advisable in herpes of the prepuce; while pledgets of lint, dipped in a solution of the acetate of lead, should be introduced into the orifice. The operation for phymosis, or should the prepuce be pulled back, for paraphymosis even, in aggravated cases, may possibly be required. Saturnine lotions, ink, also those of zinc, alum, or borax, are favourite applications in chronic circular eczema. Gibert recommends a draehm of the sulphuret of lime, and fifteen grains of camphor in an ounce of lard. In other respects, sulphur baths are suitable.

γ. Itch, scabies, or psora, is an infectious vesicular eruption, of which the frequency varies with the civilization and cleanliness of the countries whose inhabitants it attacks. It is common enough in Scotland, Ireland, Brittany, and parts of Spain, where, strangely enough, the people esteem it salubrious. Hippocrates, Galen, and Paulus Ægineta, among the Greeks; Celsus among the Romans; Avicenna, Haly Abbas, Rhazes, and Avenzoar, among the Arabians, all appear to have been conversant with scabies; which, however, they did not discriminate from other cutaneous affections. Doubtless, it is a disease common to all times and people. The vesicles of itch, preceded and accompanied by considerable pruritus, are acuminate, slightly elevated, transparent, and filled with a viscid serous fluid. Adults may refrain from scratching, but children, who have no scruples, experience a sort of erethism in tearing and lacerating themselves. The German word *Krätze*, is sufficiently significant of the practice. The pruritus, which is aggravated by every thing capable of sending blood to the surface, is greatest at night. The wrists and interstices of the fingers in adults, the hips in children, are its most frequent seats. In the latter, however, it often spreads over the whole surface, the face excepted, which, we know not why, is never implicated. In young persons, the infection operates forthwith, or in the course of a few days; but in adults, in whom the cutaneous surface is more rigid, the transmission is not so rapid. When serum escapes from the ruptured vesicles, it concretes, if permitted, on the surface; or it may be mixed with blood, forming brown crusts. If the disorder be violent or abandoned to itself, the vesicles may assume a purulent character, while ecchymatous pustules spring up amid the eruption. It can be said to have no fixed period; for though individual vesicles may die away, the tendency of the disease, by inde-

finite propagation, is to become inveterate. Itch is neither endemic nor epidemic, but simply contagious. Ancient writers had an idea of the danger of suddenly arresting this eruption; but the moderns remove it without any scruple. Paralysis, even, has been averred; but Biett attaches no credit to such statements. Doubtless, itch may ensue spontaneously; oatmeal is popularly said to predispose, as undoubtedly youth does. Infection is by far the most frequent source: I have seen all the children of a family attacked. A species of itch is sometimes contracted from the inferior animals. The *acarus scabiei*, an insect resembling a mite, has been said by Galès, Raspail, and others, to subsist in or near the vesicles. Cazenave and Biett alike deny its existence. Degeer and Redi, however, describe this insect; and Raspail more recently has given a plate of it; while Renucci, a Corsican student, extracted it, in 1834, at a meeting where Alibert was present, by means of a needle, from the little white depressions occasionally met with in the vicinity of the vesicle, a circumstance which appears to have convinced Rayer who doubted at first. It resembled a white speck when placed on the nail, under the microscope attaining the size of a pea. The varieties of itch are merely derived from aggravation, neglect, and in some cases, the broken-down health of the patient. The vesicles sometimes undergo a purulent conversion, which Heberden compares to small-pox—*ferè tanquam variolæ*. Prurigo and lichen, occasionally mistaken for itch, are papular affections; the pruritus, however, is of a more acrid character, and they are wholly uninfectious. Papulæ often preserve the colour of the skin, unless when crusted with congealed blood from scratching, and when on the hands, usually affect the dorsal surface. The vesicles in eczema are small, flat, and agglomerated, whereas in itch they are acuminate and distinct; in other respects, eczema, as well as ecthyma, may complicate scabies.

Any means that will destroy the specific action and structure of the vesicles, commonly suffices, along with cleanliness, to eradicate itch. Old women remove it with ease and safety by the very means recommended by Abernethy, Plumbe, and Green; namely, sulphureous inunction, with the internal exhibition of an electuary composed of sulphur, treacle, and cream of tartar. If to this we add a dress for the occasion, and the occasional use of the bath, with plenty of soap, we have every thing essential to a cure. The obstinacy of some cases, and a desire to abridge the period of treatment, have suggested a multitude of other remedies. Biett gives the comparative results of forty different methods; from a fortnight to three weeks, whatever line of treatment be adopted, appears the average duration. If, however, the vesicles be seen early, and are few in number, the nitrate of silver, or any of the stronger acids, destroys the specific action, and promptly removes the disease. The ointment of Helmerick, which he prefaced by a bath, contains two drachms washed sulphur, with one of the subcarbonate of potash, in an ounce of lard. A similar ointment was employed by Alibert. Celsus recommended pitch, sulphur, and oil; Dupuytren, a lotion containing four ounces of the sulphuret of potash in a pound and half of water; Pyhorel, the powdered sulphuret. Jadelot employed a liniment containing three ounces of the sulphuret of potash, a pound of white soap, and two pounds of poppy-seed oil, with some volatile oil of thyme. Frank and Autenrieth speak well of equal parts of soap and

sulphur to be employed in the bath. I have found mercurial ointment, with a little camphor, promptly to remove scattered vesicles off the hands of adults; but it is quite unsuitable in children's cases. Hoberden, however, saw the disease persist when mercury had been rubbed in for the venereal a fortnight. A popular, but improper remedy, was mixing mercury with an egg, and quilting it in a woollen belt, worn round the waist. Frictions, with sifted brick-dust even, have effected a cure. Darcet and others renewed the employment of sulphurous fumigations; but Biett found them tedious. Jadelot says that sulphurous baths, one daily, removed the disease in children in about five and twenty immersions.

δ. Pemphigus, from *πέμφιγξ*, a blister, bulla, or bleb; and pompholyx, from *πολφολυξ*, a bladder or bubble, are designations—the former employed by Sauvages, the latter by Willan and Bateman, for a cutaneous affection characterized by large bullæ or vesicles. A separate order was created by these last for its reception; but this, when we consider its vesicular character, would seem at variance with the simplicity which should ever mark our classifications of disease. We might as well, as Elliotson remarks, call a tumour by one name when big as a nut, another when big as the head. The vesicles of herpes, zona in particular, are sometimes large as the smaller bullæ of pemphigus: Biett, indeed, has seen two cases, one in an old man, another in a lady, in which eezema was actually converted into pemphigus. Alibert, by whom it was formerly termed *dartre phlyctenoides*, now classes it among the eczematous groups. Acute pemphigus, febris vesicularis, ampullosa or bullosa, bladdery fever, a rare disease, the existence of which Willan, Bateman, and Plumbe, appear to doubt, but which is admitted by Rayer, Biett, Gilibert, Cazenave, and Schedel, commences with itching, uneasiness, and general fever, followed by the development of vesicles or ampullæ, on one or more parts of the body. Gilibert, in his monograph, describes the case of a man who contracted acute pemphigus, preceded by three days ardent fever, after immersion while heated, in a marsh. An eruption of vesicles, varying in size from a pea to a nut, with injected integuments, and filled with yellowish serum, extended from the toes to the knees. The largest of these discharged their contents, leaving red painful excoriations, the smaller drying up, while both gave place to scales and crusts. The fever and local redness disappeared after the coming out of the eruption, and the man was well in a week or ten days. Joseph Frank relates a fatal instance in a child of nine months. In other respects, pemphigus, the pompholyx diutinus of Willan, is much more commonly chronic, with bullæ, more or less numerous, varying in dimensions from a pea to a nut, or even an egg. The contents are soon effused, followed by excoriations, scales, crusts, and, lastly, a new epidermis. When the bullæ are successive, the complaint may last for months. I witnessed pemphigus on the hands of a man enfeebled by disease, as well as in two other instances. The eruption sometimes takes on a circular aspect; occasionally, the bullæ are confluent. Rayer describes what he terms pemphigus pruriginosus occurring in old men, whom it exhausts by pain and sleeplessness. Alibert mentions a fatal case in a woman of fifty-seven; there were continued fever, and numerous confluent phlyctenæ, with a red base, not merely on the integuments, but extending to the mouth,

esophagus, and whole course of the intestinal canal. The unhappy patient experienced sensations as if burning coals were running through her entrails. Wichmann also describes an instance fatal in fifteen months; no part of the body was exempt. Biett speaks of pemphigus extending over the surface, which, white in one place, red and excoriated in another, is covered with yellow scales and crusts, the traces of former bullæ, which burst before they well assume the phlyctenoid aspect. Gibert admits having mistaken this affection for eczema rubrum. Pompholyx benignus is pompholyx in a mild and brief form. It is said to be more frequent among children at the period of dentition, and young persons generally. As for pompholyx solitarius, with one single bulla, it has been noticed by Willan and Biett; it is very rare. Congenital pemphigus has been noticed by Oslander, Gilibert, and Lobstein. The bullæ of pemphigus, as Aetius remarks, are, in all respects, similar to those produced by boiling water. An instance is related in a French journal of a pemphigoid eruption, which was studied with great care by the physicians in attendance, till they discovered that the patient produced it by means of powdered cantharides.

There is a disease, by some termed *rupia escharotica*, by others pemphigus gangrenosus, pemphigus infantilis or neonatorum—the *Blasenkrankheit* of the Germans. *Rupia escharotica*, says Rayer, who gives a vivid delineation of the disease in his plates, is most frequent in very young, occasionally elderly persons. It ensues in the lower extremities, scrotum, loins, abdomen, neck, chest, and backs of the ears, with great fever, pain, and sleeplessness, which may exhaust the patient in a few weeks. This disease, or one analogous, is adverted to by Macbride, the elder Stokes, and Tuomy, as occurring in different parts of Ireland, known by the terms white blisters, eating hive, and burnt holes. Spears goes so far as to describe it as epidemic, in the year 1800, in the county Monaghan. This very serious affection comes on, perhaps in the midst of apparent health, with a livid suffusion like erysipelas. One or more vesicles, mostly larger than variolous pustules, increase in size for a few days, become confluent, burst, and discharge a thin, ichorous, fetid fluid, leaving a spreading ulcer with undermined edges. Dr. M'Donnell, who met with it before 1795, informed me that a probe, when introduced, could be made to pass in different directions. When the disease occurs inside the mouth, it rarely extends to the outside. If sores come to subsist behind the ears, they destroy the connexion of the posterior cartilages with the cranium, spread to the eyes with apparent loss of vision before death, and sometimes to the crown of the head. Under the irritation of the disorder, the child grows peevish, fretful, and pale, loses its appetite, and becomes soft and flabby. About the ninth or tenth day, the sores assume a livid aspect with copious fetid discharge, which M'Adam states was so acrid as to induce erosion where it fell. Stokes mentions a case in which it was so considerable, the disease being seated in the arm-pits, as to load the patient's linen several times a day. German writers speak of very young children being affected, the eruption extending in crops over a considerable breadth of surface. Jörg, *Kinderkrankheiten*, in favourable cases, never saw the disorder subsist longer than eight or ten days; Connsbruch, however, witnessed successive crops lasting four weeks. Osian-

der knew the complaint to prove fatal, when seated on the nose, on the ninth day. Billard mentions acute pemphigus on the face and thorax similarly fatal in a little girl of four months. Crusts formed and fell; gangrene, however, did not ensue.

As to the treatment of pemphigus in general, there are unfortunately no clear indications. Some would puncture the large vesicles, while others would leave them to nature. Baths have been recommended, and such other measures, whether stimulating or the reverse, as the state of the constitution would seem to point out. Should diarrhœa ensue, it must be treated accordingly. The regimen should be strict. In pemphigus gangrenosus, Stokes recommends poultices of porter and oatmeal, followed by an ointment composed of the scrophularia nodosa, or common figwort; while M'Adam is for cinchona internally, and the argentum hydrargyri nitratis externally. Wine, opium, chicken-broth, and panada, will be administered at the discretion of the medical attendant.

III—PAPULAR ERUPTIONS.

a. THE term lichen, from λειχω to lick, is employed by Willan, whose graphic delineations have become the basis of so many subsequent productions, to designate an eruption of agglomerated, reddish, itchy, solid pimples or papulæ, appearing, perhaps, first on the face and arms, in three or four days extending to the trunk and extensor surfaces of the extremities, and followed by slight desquamation, sometimes excoriations covered with scaly crusts. In chronic cases, however, it is much more commonly local. It frequently runs its course without any apparent constitutional symptoms, save those arising from pruritus and want of rest. The eruption may decline or disappear, or go on in successive crops for years. In aggravated cases, the cutaneous surface becomes dry and rugous, perhaps traversed by deep fissures. Lichen simplex rarely ensues in the acute form. When lichenoid eruptions implicate surfaces covered with hairs, the term pilaris has been applied. Lichen circumscriptus in well-defined irregularly-circular patches, ensues sometimes on the trunk, more commonly the dorsal surface of the hand, fore-arm, and ham. It also attacks the lumbar region, sacrum, margin of the anus, scrotum or vulva, in these cases inducing sensations peculiar to the parts. It may remain stationary for a while, then disappear; at other times, the patches gradually enlarge by means of papular accessions at their margins, the centres remaining free, but otherwise in a state of desquamation or furfurescence. Lichen agrius, from αγριος fierce, most frequent in persons broken down by age and excess, is generally preceded by more or less general febrile disturbance, in which Rayer includes nausea, vomiting, and diarrhœa. Here we have numerous groups of red inflamed papulæ, with pruritus amounting to anguish, patients lacerating the parts from which a viscid humour exudes. It is common on the dorsal surfaces of the hands and fingers, sometimes extending to the matrices of the nails which are injured or destroyed; occasionally the lower extremities are implicated. In the acute form, the disease may disappear in a week or fortnight.

the exhalations ceasing, the excoriations drying up and being replaced by a furfuraceous desquamation; otherwise, it oftener becomes chronic and is indefinitely protracted. In two instances, Rayer witnessed the development of lichen along with petechiæ; lichen lividus, though very rare, has been witnessed by Willan, Biett, and Gibert, respectively. Bateman describes a variety of lichen, on which, from the irregular inflamed wheals and the fact of its coming and going, he bestows the epithet *urticatus*. Rayer only met with it during the heats of summer and in young people; even then rarely. Gums or rashes, termed *strophulus* by Willan, and divided into five very needless species, is merely infantile lichen; in fact, lichen *urticatus* and what Willan terms *strophulus candidus*, are analogues of each other. *Ita multi sunt infantes*, says Lorry, *quibus ad singulas dentitionis periodos irritatio lichenis exterius producit*. Lichen *tropicus*, or prickly heat, is peculiar to Europeans, those especially who, according to the usual practice in tropical climates, keep the surface enveloped in flannel. The whole thorax was closely covered with it while I was on the coast of Africa; inducing very inconvenient pruritus and irritation over the affected points. It always disappeared whenever I was attacked with the endemic remittent, an occurrence erroneously esteemed the result in place of the source of the suppression. Mosely, Hillary, Johnson, and all writers on tropical diseases, advert to it. Lichen affects every age, from infants at the breast to advanced decrepitude; in other respects, it is more frequent, according to Biett, in men than women. Grocers, and, it is said, cooks and smiths, are very liable. I have witnessed it, in a few instances, on the backs of the hands of lymphatic scrofulous females. When removed, it is apt, after the lapse of some months, to return. I have observed the general health better during the persistence of the eruption than otherwise. Biett conjectures that portions of the cutis which preside over exhalation and the secretion of the pigment, are those primarily affected. In persons of sallow surface, he has witnessed darkening of the colour years after disappearance of the papulæ. Sometimes, it is said, the piliferous bulbs are implicated, in which case hair, as Celsus observes, falls out and is imperfectly renewed. Lichen is sometimes complicated with furuncular, vesicular, or ecthy-matous eruptions; these, again, may precede as well as follow it. In prurigo, also a papular affection, the pimples are larger, flatter, and more isolated, while, the little bloody concretions on their summits excepted, they have much the colour of the skin. The pruritus, also, is much more considerable. Itch is vesicular, not papular. Herpes and eczema, when on the decline, present an analogy with some forms of lichen; papulæ, however, are not witnessed, neither do we find the minute scales which sometimes characterize the latter. Pustules sometimes occur on surfaces occupied by lichen; but the thick crusts which succeed the psudracious pustules of impetigo fall readily; whereas, in lichen *agrius* the crusts are thin, scaly, and detached with difficulty. In psoriasis, the scales fall and are replaced by others; the dermis is hypertrophied, nor are there any papulæ in the intervals of the plates.

Temperance and regular living often suffice for the cure of lichen: acidulated drinks, sherbets, and lemonades; cold baths, and cooling diet, according to Biett, will remove it in summer. Hot or tepid baths are

apt to augment the irritation flowing from the disorder. Green recommends weak alkaline lotions, as calculated to appease the pruritus. General blood-letting, and leeches in the vicinity of the affected parts, lessen irritation and fever in young and vigorous subjects. Elliotson mentions lotions composed of the chloride of lime or soda. A scruple of protiodide of mercury in an ounce of lard, subsequently, the deutiodide, in the same proportions, has been found to answer. Bielt prescribed proto-nitrate of mercury, and camphor, each a scruple, axunge and almond oil, each half an ounce, also, a bath daily, medicated with eight ounces of a solution of the subcarbonate of soda, and four ounces of softened gelatin. Irritating applications, however, are generally inexpedient. Gibert mentions obstinate lichen pilaris of the nape, which, having resisted all remedies, was eauterized after vesication, by means of the acid nitrate of mercury, which merely served to aggravate the complaint. A year after, there were hard red portions with voluminous papulæ. Frequent unctions with hog's lard, cataplasms, and vapour douches, perseveringly employed, at last induced a cure. Lichen will often yield to the simplest measures, at others, defies the most skilful. In a case at St. Louis, sulphurous baths and fumigations, though preceded by antiphlogistics, only made matters worse. The patient was then subjected to a strict regimen, followed, after some time, by the sixteenth of a grain of the arseniate of soda daily. Slight gastro-intestinal derangement caused the medicine to be interrupted, but the patient, his complaint being removed, was kept in the wards three months. After all, however, it returned. As to lichen tropicus, I would greatly question the propriety of interfering with it by means of topical applications.

β. Willan attached the term prurigo to an affection previously termed pruritus; and by connecting definite characters with the designation, dissipated the obscurity that had subsisted. Alibert further assisted in distinguishing it from scabies, with which it had been generally confounded. In prurigo, prurigo mitis for example, the papulæ are larger as well as more distinct than in lichen; they are also of the colour of the skin, unless when torn, in which case they are covered with dark crusts; occasionally, however, they subside into yellow spots. Prurigo formicans, derives its name from the sense of formication, as if insects were creeping over the skin. Prurigo senilis is a term applied to the disease when occurring in aged persons, in which case it is occasionally attended with pediculi. Prurigo may be said to be always chronic; it lasts months or years, as the eruption is simultaneous or successive. The shoulders, neck, outside of the thighs and legs, are its usual habitat, but it may extend over the whole surface, even the face, according to Cazenave and Schedel, though this be denied by Rayer. The itching comes on in paroxysms, and is usually greater when the patient is warm in bed. *Sedatur*, says Lorry, in his *Traктatus de morbis cutaneis, vulgò per plurimas horas malum, tuncque omnia tranquilla apparent, et recrudescit per paroxysmos, noctu potissimum afficiens*. The pruritus, in many cases, is quite intolerable: patients complain as if hot needles were darting through their flesh, so that they rise from bed and gladly resort to any means that promises to appease the insatiate itching. An old lady whom I attended, complained as if the parts were on fire. Elliotson saw a person who had

worn out a tooth-comb tearing himself; and he mentions two others whom the continued intolerable fornication had reduced to a state bordering on imbecility. Suicide, even, is said to have been perpetrated. Persons of considerable celebrity are reported to have laboured under it. The abbé Morellet, eighty years of age, was forced to rise through the night in order to sponge his back and breast with vinegar. Writing to Alibert, he told him that he felt as if on the gridiron of St. Laurence. A military man complained to the same observer, that he felt as if incessantly pricked with halberds. Alibert further mentions a person who experienced such unappeasable itching in the sole of the foot, as to be forced, wherever he was, to take off his shoe and stocking and rub the part till he obtained relief. Pruriginous eruptions, however, do not subsist in this site. When prurigo attacks the anus and genitals, as it sometimes does, strong sexual desires, with such restlessness and continual attempts to allay the pruritus ensue, as to drive the patient into solitude. In females, this is often conjoined with leucorrhœa. Lorry, and more recently Bielt, have given striking instances of venereal erethism as excited and maintained by prurigo pudendi. Prurigo, which is in no wise contagious, may subsist at all periods; but Hippocrates, Paul of Ægina, and Avicenna justly refer to its greater frequency in advanced life. Inferior food, misery, and privation, as Galen noticed long ago, have, doubtless, an influence in its production. I witnessed an instance of prurigo implicating both of the lower extremities as high as the hips, in a hypochondriac old gentleman who had confined himself months to bed. At a little distance, the crusted blood on the surface of the papulæ wore somewhat the aspect of petechiæ. It has been said to be more frequent at cessation of the menses; but on this and some other hypothetical causes, I need not dilate. Pruritus cannot be esteemed exclusively pathognomonic of prurigo, since, however intense in this, it is also met with, as Mercurialis well observes, in other cutaneous affections, lichen, urticaria, scabios, and eczema. Scabies is a vesicular affection, prurigo a papular one: in other respects, not merely scabies, but eczema, impetigo, and ecthyma, may coexist, it has been alleged, with prurigo.

Cold or tepid baths, fresh or salt, plain or medicated, with attention to regimen, answer best in prurigo mitis, as well as in the prurigo of senility and infancy; and while they cure the disorder, may, perchance prevent a return. Few cases can demand blood-letting; purgatives, however, may often prove expedient. Sulphur fumigations are occasionally useful, but the irritation which they sometimes induce obliges us to suspend or alternato them with warm or vapour baths. Bielt, however, employed an apparatus for sulphureo-mercurial fumigations at St. Louis, with considerable advantage. Green is for the vapour, then the hot-air and sulphur-fume bath, of which he alleges the efficacy when perseveringly resorted to. Thomson has seen much comfort in local prurigo from a warm hip bath at bedtime, and a cold hip bath in the morning. In prurigo, as well as other cutaneous affections of the scrotum, I have found it advantageous to employ a suspensory bandage, Rayer mentions a young pregnant woman with intolerable itching of the genitals, combined with varix in the left labium, which was thus dissipated. Willan and Bielt advise barley-water with a drachm of subcarbonate of soda to the quart. I have found mineral lemonades,

with sulphuric or nitric acid, useful. Alkaline lotions, also cloths dipped in cold water during the paroxysms, with, as Plumbe recommends, frequent ablutions, and absolute forbearance from scratching, will often be productive of relief. In fact, tearing the skin, from which it is often difficult or impossible to induce the patient to desist, aggravates as well as perpetuates the disorder, and nullifies the effects of remedies. Mr. Wilkinson avers that the secretions in cutaneous affections are alike, and that the treatment may be reduced to uniform simplicity. He reports the cure of a very obstinate case of prurigo, within a moderate period, by touching the bleeding papulæ, torn as they were by a comb, with lint dipped in aromatic vinegar, till the sense of smarting was great as could be borne. He then applied an ointment composed of sulphur, tar, axunge, each half a pound, chalk four ounces, and hydrosulphuret of ammonia two drachms. On the third day, the acid was reapplied; and afterwards, every third or fourth day, a solution of the nitrate of silver, with the ointment as before. On the second night of these applications, the patient slept four hours; and in less than three weeks, the eruption had nearly disappeared, while the itching was quite gone. In a case of prurigo of the ham, which had resisted every other mode of treatment, I was able to effect a cure by anointing, night and morning, with diluted unguentum hydrargyri nitratis, combined with mercurial ointment, in the proportion of a drachm of the latter to an ounce of the former. The gums becoming sore, I substituted a drachm and half of strong nitric acid to an ounce of axunge. A sense of smarting was the immediate result, but this shortly subsided, followed by an abatement of the itching, while the patient, who was otherwise confined to a regimen, with attention to the bowels, was able to sleep throughout the night. In obstinate prurigo of the hand, Biett tried cinabar, two drachms, sublimed sulphur, half an ounce, laudanum, two drachms, axunge, five ounces. In another, quick-lime, two drachms; subcarbonate of soda and laudanum, each half a drachm; axunge, one ounce; with three alkaline baths in the week. Alibert recommends flowers of zinc, one drachm, sulphur and laudanum, each half a drachm, almond oil, one ounce, axunge, three ounces. Other remedies, arsenic inclusive, have been resorted to with variable success. Gibert mentions a boy whom he exhibited, course after course, for several years, as an example of inveterate general prurigo. At last, he left off all remedies; and it was not till after being worn down and etiolated by want and privation, as well as a dark damp abode, that his disease began to give way to a change of regimen and better mode of living.

IV—SQUAMOUS ERUPTIONS.

LEPRA and psoriasis, two uninfected scaly diseases, are modifications of one and the same affection; differing in degree but not in kind. Instances, in fact, occur, in which, by the confession of the ablest dermatologists, the distinction is impracticable. Lepra, leprosy, the *lepra vulgaris* of Willan, is an eruption characterized by rounded plates or scales, with marginal elevations and central depressions. It some-

times develops itself with small red points, whose union constitutes the plates of psoriasis as well as lepra; these are covered with thin scales; the plates gradually enlarge, unite, and lastly, assume the circular aspect just adverted to. The increase is effected at the margins, which are covered with numerous, greyish, dry, and very adherent scales; while the circumscribed or central portion remains comparatively intact or perhaps perfectly sound. The little plates which united give rise to these circular rings, only differ, as Gibert remarks, from those of psoriasis guttata by the circumstance of the latter remaining isolated and scattered over the surface. The rings vary in dimensions from sixpence to a crown. A couple may be joined from the first, or become so during the course of their progression. Even here, however, arcs of circles will be discovered at the edges. When the scales fall off, or are removed, the orbicular surfaces which they leave, are red, shining, and slightly elevated. When the patches are recent, the dermis presents no corresponding depressions, otherwise there are wrinkles or crevices produced by the lower surfaces of the scales. They are, however, speedily reproduced, so that successive crops are witnessed within months or years. Indolent scaly plates are commonly first developed on the outside of the elbows or knees; but the arms, thighs, breast, shoulders, loins, and lateral parts of the abdomen, may be covered by their gradual progression. The hands and hairy scalp are rarely engaged, but Cazenave has several times seen it confined to the latter. Recovery extends from the centre to the circumference; new scales cease to replace the old, the circle breaks at different points and disappears; lastly, the skin presents a greyish or yellowish, and, finally, its normal aspect. Lepra is mostly chronic; but Cazenave and Bielt have known it acute, while the former has witnessed its successive occurrence over the belly, back, breast, hairy scalp, and even the face and hands. I witnessed a case of conjoint lepra and psoriasis in one of my own patients, in which the disease, of fourteen years' duration, implicated the whole cutaneous surface, the face, hands, and hairy scalp inclusive, the palms of the hands and soles of the feet being the only parts exempt. Lepra may remain stationary without implicating the general health; at other times, it covers the skin to such an extent as to cause great pain on moving the limbs. There is often troublesome itching, but no discoloration or ulceration, even after the fall of long-subsisting plates. In some cases, lepra comes and goes—disappearing in winter and returning in summer. Lepra nigricans receives its modification from syphilis; as for what is termed lepra alphoides, the circles are smaller as well as more regular, and in fair-haired persons somewhat pearly or iridescent.

Psoriasis commences in the form of small red elevations, about the size of a pin's head, which are speedily covered with minute, dry, dull white scales, or, as I have witnessed them, reddish, just the same as those which ensue in ordinary lepra, only that the circular arrangement is less manifest. In psoriasis guttata, however, small, distinct, circular, squamous plates, from two to four lines in diameter, are scattered over the surface; should the scales run together, a very common occurrence, we have the psoriasis diffusa of the great English dermatologist. I have witnessed patches large as one or both hands. Like ordinary lepra, the plates of psoriasis guttata or discreta, numerous

on some points, scarce on others, may be confined to the scalp, face, trunk, limbs, respectively, or disseminated over these regions simultaneously or in succession. Less frequent in children, it is more rapid in its development than in adults. Like lepra, it has been known to come and go for a succession of years: in the same manner, recovery ensues from the centre to the circumference, while the circles break up and disappear. There is not much pruritus; but, whether from the action of the nails or otherwise, more or less exfoliation of the epidermis is apt to ensue. In diffuse psoriasis the plates are flat, angular, and irregular. Its points of selection are much the same as those of the preceding species, with which it is often combined; I have seen it, like Cazenave, extend, with small branny scales, over the whole surface. An eruption, however, of bright pearly scales, more generally forms irregular zones or bands, sometimes with fissures and rhagades, round the extremities, than a continued envelop. After the scales fall off or have been removed by baths, lotions, or vapour douches, the surface is seen red, inflamed, and shining. When the disease has lasted months or years, it may become greatly aggravated; the skin grows hard, cloven, and rigid; the limbs and trunk assume the aspect of a withered tree, so that the patient moves with difficulty: the crust readily cracks, emitting blood; the nails, even, become yellow, cloven, and fall off, giving place to shapeless scaly incrustations, the psoriasis inveterata of Willan. Green mentions a lady who, every morning, collected half a wash-hand bason of small scales in her bed. Psoriasis gyrata, so termed, is commonly the remains of leprous rings. Psoriasis palmaria and psoriasis plantaris, occur respectively on the palms of the hands and soles of the feet. Partial psoriasis, however, often obstinate, may ensue in other situations, as the eyelids and corners of the eyes, with irritation perhaps extending to the conjunctiva, psoriasis ophthalmica; on the lips, psoriasis labialis, forming a regular circle round the mouth, in some cases conjoined with more or less irritation of the buccal membrane; the prepuce, psoriasis preputialis, the least effort to uncover the glans causing great pain and more or less bloody discharge; lastly, the scrotum in men, of which I have witnessed an instance, and labia in women.

Lepra, doubtless, was known to the Hebrews, Greeks, Romans, and Arabians; but it is more than questionable whether they applied the term to one and the same affection, much less the non-infectious squamous disorder to which it is now exclusively restricted. In fact, during the middle ages, lepra was applied to cutaneous affections indiscriminately: in the eighth century, there were two thousand receptacles for reputed lepers in France alone. Since that period, the disuse of sordid woollen clothing, and increased comforts of the people, have rendered this, along with other cutaneous affections, less frequent. Psoriasis diffusa, as mentioned before, merely differs from lepra vulgaris by the different arrangement of the scales, the latter being circular, the former scattered. Both, however, as Rayer observes, commence in the form of solid elevations, assume the aspect of circular scaly patches, which, even in the same patient, may present the appearance of psoriasis discreta on the trunk, and those of lepra on the knees and elbows. In psoriasis guttata or discreta, the plates are circular: they are, however, smaller than those of lepra, and, unless in the stage of recovery,

elevated in place of being depressed in the centre. Those distinctions, however, are trivial and unimportant, and constantly occurring in other cutaneous disorders. Nor are they, indeed, always observable, lepra merging into psoriasis, and psoriasis into lepra, by insensible gradations. Rayer, indeed, considers psoriasis guttata or discreta as intermediate between psoriasis and lepra. He mentions a young washerwoman who, without any assignable cause, was attacked with psoriasis discreta on the upper and lower extremities and trunk. About five months after, various red flattened patches, from three to five lines in diameter, covered with minute squamæ, were observed; also others of much larger dimensions, irregularly round or oval, the edges raised above the surrounding integuments, the deep red tint gradually diminishing towards the centre, in fact, counterparts of lepra. On the identity of these affections, in other respects insisted on by Plumbe and Gibert, it is needless here further to expatiate. The slight circular exfoliations remaining after the vesicles of herpes, also circumscribed lichen and porrigo when the scabs have fallen, and the circular tubercular eruptions of secondary syphilis, are readily distinguishable from lepra and psoriasis.

Elephantiasis or leontiasis of the Greeks, a tubercular disease, was long confounded with lepra, or at least bore the same name. This singular malady is endemic in different parts of Asia, Egypt, Sumatra, Ceylon, Cayenne, St. Domingo, Martinique, and Madeira. It is quite uninfected: Biott mentions a lady from the colonies, his patient, who bore several children entirely free from the disorder. It may, however, be contracted by Europeans who have resided long in the endemic regions. Those who experience it before puberty, which change it is apt to delay, die between their twentieth and thirtieth years; if at a later period, their existence is protracted. Leontiasis, from the fancied resemblance to a lion's face, comes on, it is said, with small reddish spots, followed by soft livid tumours or tubercles, varying in size from a pea to a nut, over the face, eyelids, ears, nose, more rarely the limbs and trunk, causing the most singular and repulsive alteration in the patient's aspect. He seems to have doubled his years; inflammation and ulceration ensue in the fingers and toes, which fall off, joint by joint, sphacelous; glandular swellings ensue in the groin; the nasal cartilages are destroyed, and the voice becomes hoarse and raucous, or is wholly lost. The venereal œstrus said to subsist, is anything but general; in other respects, three men are affected for two women. The disease, notwithstanding the boasted Eastern specific, arsenic and black pepper, is incurable. Pian, yaws, or frambœsia, another tropical affection, appears confined to negroes of the western hemisphere. Though infectious, it is rarely experienced oftener than once in a lifetime. A papular eruption, with fever and general indisposition, precedes the formation of large scabs, from which purulent matter is discharged, and which, if removed, display a nasty ulcer. The larger scabs and ulcers receive the name of mother-yaw, and are followed by a reddish or whitish cauliflower fungus, bleeding on the slightest touch, but healing up with a superficial cicatrix. On the soles of the feet it receives the name of crab-yaws: the pharynx, palate, and bones are also liable. The pian of Nerac described by Raulin appears to me to have been pemphigus gangrenosus. Though mercury be recommended by some, temperance,

moderate exercise, and decoctions of the woods, appear better remedies. Pellagra, dermatagra, *mal de misère*, the *mal de la rosa* of the Asturias, is an uninfected cutaneous affection, endemic in the plains of Lombardy. The curious epidemic of acrodynia occurring in Paris, in 1828, and that termed dandy-fever in the East Indies, display further analogy. Pellagra has been observed and studied in Italy by Biett, Brierre de Boismont, Holland, Carswell, Johnson, and others. Excessive exposure, low diet, and misery, are the reputed causes. The disease, which, until it become chronic, breaks out in spring and summer, to disappear in autumn and winter, commences as an erysipelatous eruption, with more or less gastric derangement, followed by scales bearing a resemblance to inveterate psoriasis, obstinate diarrhœa, and an exhausted fatuous condition terminating in death. Of five hundred inmates in the lunatic asylum at Milan, more than one-third, Holland relates, were pellagrosi. Other disorders, even, are modified by it, and named accordingly; as mania pellagrosa or pellagrina, hydrops pellagrosa, and so on. Pellagra does not appear to me so much a peculiar disease as a sort of cachexy induced by extreme destitution, and which a wise paternal government might extirpate.

Pityriasis, a mild, somewhat squamous affection, occasionally confounded with psoriasis, more especially of the lips, is characterized by small red spots, covered with minute furfuraceous scales. It may be seen behind the ears, on the folds of the arms, wrists, navel, prepuce, groins, and instep, not unlike erythema, intertrigo, or fret; it is most common, however, on the scalp. Here it manifests itself with considerable itching, and margaritiferos desquamation, and a glutinous exudation, that binds the hair and scales into masses. When these are washed off, the skin appears of a vivid red, the hair, however, is only accidentally detached. The tongue and inside of the mouth, the labia in females, and prepuce in men, are liable to be affected with chronic inflammation and desquamation of the epithelium. General pityriasis, most common in women, is rare; it may last years. It must not be confounded with the scurf or dandriff excited on the skin, face, and head, by the act of shaving, or the over frequent use of stiff combs and brushes. The trivial epithets, capitis, versicolor, rubra, and nigra, mere pigmentary discolorations, as chloasma, melasma, qualify different alleged varieties of pityriasis. Cleanliness in the mild forms, poulticing, followed by baths, clipping the hair, alkaline lotions, moderate purgation, and leeches behind the ears in severe ones, appear the only needful remedies in pityriasis capitis. I removed very obstinate pityriasis off a lady by means of repeated warm baths with alterative saline aperients in a bitter infusion. Inveterate ichthyosis, mistaken by Plenck and others for lepra, has been compared, as well as psoriasis inveterata, to the bark of a tree, which it resembles more than it does the scales of fish. In this complaint we have morbid thickening of the lamellæ of the epidermis: in other respects, the disease may be local or general, with suppression more or less complete, of cutaneous transpiration. It is most common on the outer surfaces of the joints, legs, arms, and between the shoulders, wherever, in fine, the skin is thicker than ordinary. In a child under Biett, the face was the only part exempt. Cases have been related, in which the cuticle was thickened and cracked to that degree, as to resemble a coat of mail; while the sallow, grey, and

ashen surface felt like shagreen. Sometimes numerous prickles, from uneven development of the epidermis, as in those popularly denominated porcupine-men, ensue over the surface—actual horns even, of which I knew one instance, to the astonishment of observers, have been generated. Ichthyosis may be casual or congenital; always obstinate, in the latter case incurable. It is in other respects hereditary. Rayer met with forty cases of general ichthyosis; I have seen just one in my own practice, and, contrary to the general rule, in a female. Here, the legs, arms, back, and neck, were implicated, and the disease was mitigated during the heats of summer. Baths containing the sulphuret of potash, flannel next the surface, exercise so as to promote cutaneous transpiration, occasional doses of sulphur internally, and abundance of pitch in pills, made by softening this substance in warm water, then throwing it into cold, with ointment of mutton suet copiously rubbed on the surface, eventually rendered the skin comparatively moist and supple.

The treatment of lepra and psoriasis, owing to their great tendency to relapse or return, as well as other causes, is far less satisfactory than could be wished. Baths externally, aperients, arsenic, cantharides, mercury, infusion of dulcamara, and pitch, internally, have been employed with variable success. Irregularities of regimen should be suppressed, since otherwise we cannot hope for permanent success. Biett and Cazenave mention that habitual tipplers remaining three months in St. Louis after their perfect recovery, would return in a fortnight or three weeks, covered afresh with plates. In recent cases, a course of purgatives has often succeeded, in this great hospital, in getting rid of the disorder. Rayer, who has had occasion to treat the disease in all classes, mentions that tincture of cantharides, from ten to thirty drops, or even more, gradually increased, in some mucilaginous vehicle, sometimes causes the disappearance of lepra when the disease is mild and limited. Should irritation of the digestive or urinary organs, in females more especially, supervene, the remedy must be suspended or discontinued. A patient, a lady, was prone to diarrhoea, for which opiates could not be exhibited without aggravating the cutaneous affection. Here, however, I found kino and catechu, in the infusion of rhatany, to have the desired effect. Sometimes the disease disappears spontaneously. Alibert mentions a child who was completely freed from lepra vulgaris by an attack of variola; also a woman in whom psoriasis inveterata vanished after being struck by lightning. Patients of Biett, again, have been relieved, some by fever, others by erysipelas. Green has found arsenic to succeed when other remedies failed. He prefers the Asiatic pill, or a drachm of the oxide, seven drachms powdered liquorice, six of black pepper, made up with a drachm of syrup into eight hundred and forty pills, of which at first one daily. Kane of Dublin has recently proposed the iodide of arsenic and mercury. Any arsenical preparation, however, when carefully employed, possesses, no doubt, the peculiar virtues of this active medicine. Gibert gives two cases, one of psoriasis guttata, and one of psoriasis inveterata, otherwise lepra vulgaris degenerated, cured, the former in three, the latter in six months, with the aid of Fowler's arsenical solution and arseniate of iron. The remedy was occasionally discontinued, especially when gastric irritation supervened, enemata and aperients, such as the sulphate of soda

in veal broth, along with plain and alcalino baths, being substituted. When patients are young and vigorous, venesection has proved serviceable, also leeches in the vicinity of the affected plates; in inveterate cases, however, and in persons of broken down constitutions, such remedies are inadmissible. The redness having declined, Green has applied dilute aromatic vinegar, followed by lunar caustic in substance; internally the carbonate of ammonia, in infusion of cloves, alternating with liquor potassæ in the infusion of sarsaparilla. Other stimulant applications have been resorted to, as tar ointment, that of the nitrate of mercury, or that of the iodide of mercury and sulphur, from twelve to thirty-six grains to the ounce. Gibert speaks of a drachm of the iodide of ammonia in an ounce of lard; but topical remedies are innumerable. Alibert has removed psoriasis inveterata by means of warm baths and douches of sulphuretted water, when baths at home had been used in vain. Mild psoriasis diffusa I have more than once dispersed by means of warm baths, aperients, a spare regimen, and a scruple of the sub-carbonate of potash or ammonia, taken daily in a quart of barley-water flavoured with cinnamon, syrup of oranges or lemons. Green attaches great importance to the sulphur fume bath, which one of his patients employed sixty-three times. I certainly succeeded by having recourse to it, when arsenic and cantharides internally, with baths medicated with the sulphuret of potash, and rendered gelatinous by the addition of gluo, had failed.

IV—EPIZOA.

α. As parasites infesting the bowels have been described under the term entozoa, so those of the surface receive the equally appropriate designation of epizoa. Four species, *pediculi capitis*, *pediculi corporis*, *pediculi vestimentorum*, and *pediculi pubis*, have been enumerated. Phthiriasis has been applied to their general prevalence over the surface, from *φθεις*, louse. These apterous parasitic insects are described by Fabricius, Linnæus, De Geer, and Leuwenhoeck; the last of whom in imitation of certain European and Eastern fanatics, though from very different motives, submitted to their infliction in his own person. Several nations are no ways particular on the score of their presence, some even esteeming it salutary. *Pediculi capitis* are brown and flattened, and do not readily abandon the warmth and shelter of the hairy scalp. Nits by the English, *lentes* by the French, are names bestowed on the young, which, in this state, are minute white objects. *Pediculi corporis*, body-lice, by Linnæus and Latreille, however, esteemed of the same species, are whiter, broader, and flatter. They abound over the surface, infest the axillæ and clothes. *Pediculi pubis*, crab-lice, or morpions, round, flat, and smaller than the foregoing, affect the pubis, beard, eyebrows, eyelids, and axillæ, entailing considerable pruritus. Laurence mentions their occurrence on both eyebrows of a little girl; and Paulus Ægineta speaks of their presence in the eyelashes. Dirty persons, those who wear flannel without often changing it, and children with long, soft, light hair, are apt, if neglected, to become the prey of *pediculi*. Medical students and others in hospitals and dissecting-rooms

are further liable to them. As they cannot subsist without a predecessor, so cleanliness is the surest guarantee and preservative. Age, dirt, and protracted illness, appear additional causes for their propagation. Instances, however, have been related, in which the concurrence hardly suffices to explain their prevalence. Going on one occasion to see a poor woman, who bared her leg, which, not to speak of other parts, displayed lice in swarms. An instance occurred a few years back in Guy's hospital, and recorded before the Medico-Chirurgical Society, in which an aged governess, notwithstanding baths and every species of cleanliness, could not be freed from a profusion of these disgusting insects. An example is even related by Pitschaft, in Hufeland's Journal for 1830, in which they penetrated into the vagina. Families of distinction, whose names could be mentioned, have, it is alleged, been infested with lice to the death. Many recorded instances are unworthy of credit; yet Valentine describes small tubercles over the surface, conjectured by Rayer to have been dilated cutaneous follicles, and which, being opened, gave issue to pediculi of different sizes. Rust, to say nothing of Forestus, punctured, on a boy's head, a tumour which was found to contain a multitude of nits. Heberden relates a case of morbus pedicularis on the authority of Wilmot, in which *tumores exigui sparsi erant per cutem: ubi acu aperti fuissent, inventi sunt pleni pediculis*. Whatever may be thought of these instances, which I would esteem purely accidental, pediculi, in the great majority, owe their prevalence to want of cleanliness, aided in some cases by a broken-down constitution, and the influence of early youth or advanced age. Were I to meet one such, I would recommend the patient to live immersed in warm water as much as possible. In other respects, extreme cleanliness, with sulphuretted baths, commonly prove a sufficient antidote. Powdered parsley seeds or stavesacre may be sprinkled in the hair. Rayer has successfully employed mercurial ointment, diluted with lard. The same may be rubbed on the eyebrows; while calomel and starch, when requisite, may be dusted over the pubis, or in the axillæ.

β. Other minute creatures occasionally infest the surface, as the bug, *acarus domesticus*; harvest bug, *acarus autumnalis*; the œstrus, or gadfly; the minute tree or grass leech of Ceylon; the musquito or guat; the common fly which haunts the dying, and which, if permitted, lays eggs in wounds or sores; the beetle, the spider, the scorpion, the bee, the wasp, and the ant; the flea, *pulex irritans*; gigger, chigre or chigoe, *pulex penetrans*; and lastly, the Guinea-worm, *filaria Medinensis*. Chigres are the plague of bare-footed negroes, and occasionally of whites: they make way for themselves by means of their long beak or proboscis, and lay a number of eggs in a bag about the size of a pea. The great thing is not to rupture this by violence, or suffer the insects to escape spontaneously, since troublesome ulcers, sometimes it is alleged fatal, may result. Negro women are expert in extracting these eggs with a needle, whole; after which they fill the little cavity with tobacco ashes, so that it soon heals up. The dracunculus or Guinea-worm has an attenuated cylindrical body, thick as coarse cat-gut, blunted at the extremities, and in length from one foot to six. It inhabits the cellular tissue of the human subject; but, in some instances, is met with in the scrotum, head, neck, chest, and even, it has been said, under the ball of the eye. Joseph Frank speaks of its being seen in Lithuania; but,

as almost universally agreed, it is confined to the torrid zone. Two or more may subsist in the same individual. What Jacobson considered a peculiar internal structure, may be merely the young enclosed in the body of the female. It can be traced under the surface, and seems to give little disturbance unless unskilfully meddled with. After a period, varying from weeks to months, a small phlegmonous abscess ensues, from which, whether it burst or be artificially opened, a portion of the worm protrudes. This is submitted once or twice a day to cautious traction, in order to avert rupture and consequent sinuses, till the whole be drawn out. Some cut down upon the centre of the worm, and so abridge the term of treatment; and it appears from Scott's experiments, that it even suffices to clip off daily with a pair of scissors the part that spontaneously protrudes.

VI—PHLEGMON, FURUNCLE, CARBUNCLE.

PHLEGMON was once regarded as the type of inflammation, an opinion now pretty generally abandoned. Youth, plethora, and the exciting causes of inflammation in general, however, are also those of phlegmon. If seated in the soft parts, and not bound down by fascias, the local pain and general reaction are inconsiderable; but if in those amply provided with nerves and fascias, or, in other respects, of dense texture, there will be great pain, fever, and sleeplessness; while the products of inflammation, not finding a ready vent, fuse or burrow in different directions, or perhaps extend laterally and equally in all. Begin mentions that he has more than once seen deep-seated phlegmons, bound down by the cellulo-fibrous layer that divides the axillary region into two parts, unable to vanquish the resistance, extend as far as the clavicle, dissect the parts implicated, and transform the whole region into a vast focus, containing a couple quarts of pus. The mischief and distress occasioned by deep-seated abscess, as beneath the fascia lata of the thigh, are well known. Panaris or whitlow is merely local phlegmon occurring under the nail, as well as beneath the fibrous aponeurosis which forms the attachment of the extensor and flexor tendons, the innumerable cells and divisions which enclose the adipose flocculi and nervous filaments, constituting the elastic sensitive cushion at the extremity of each finger. Every one is aware of the painful pulsatile agony attending this affection, which can only be quickly remedied by early and free incisions down to the seat of disease, so as to divide the tendinous expansion, and unbridle the inflamed portion. This little operation, though severe, is effectual; whereas, the omission may entail inflammation along the sheaths of the tendons, as well as intolerable pain extending in the direction of the axilla. This affection, of course, is quite distinct from nail growing into the flesh, for which I have twice witnessed Dupuytren cut off the great toe; but which, as well as corns and bunions, is easily remedied by repeated applications of the nitrate of silver to the fungoid elevations. I have seen two instances of permanent contraction of the hand and fingers from what must have been neglected panaris of the palm. At sea on one occasion, a poor Swede, whom the captain accused of malingering, complained

of agonizing pain in the hollow of the hand. He could not extend the fingers, or bear them to be touched or moved. I made an incision through the palmar fascia, which gave issue to a dessert spoonful of pus, with immediate relief and eventual recovery. When the skin is primarily affected, the subcutaneous cellular tissue secondarily, the term phlegmonous erysipelas is usually applied; in other cases, as in diffused phlegmon, inflammation of the surface may prove consecutive. Lastly, when the areolar packets, or conical prolongations of the subcutaneous cellular tissue, are implicated, it constitutes phyma, furuncle, boil, or carbuncle. Furuncle is an inflammatory tumour of the surface, of a red colour and conical form, very tense and painful, and varying in size from a pea or less, to a goose-egg. One or more may subsist at the same time, or they may come and go in crops, on the hips, thighs, back, belly, arm-pit, perineum, and folds of the anus, in which last situation they induce great uneasiness, and difficulty of progression—their colour is often livid rather than red. On the fourth or fifth day they open at the apex, giving issue to a quantity of sanguinolent pus, with then or subsequently, in most cases, protrusion of a portion of core, by Gendrin esteemed coagulable lymph, which does not wholly escape for some days longer. Sometimes a number of orifices, afterwards uniting into one, form at the apex, constituting furunculus anthracoides. Occasionally, even after being well poulticed, or the popular remedy soap and sugar applied, it is necessary to puncture, so slow is the matter in making its way to the surface. Small boils or furuncles, imperfectly suppurating, have been called blind biles. Ensuing on the margin of the upper eyelid, or inner canthus, the term hordeolum, or sty, has been applied. I have also seen them inside the nostrils; and they likewise occur on the penis and scrotum. They suppurate slowly, discharging a little thin pus, subsequently a small core, after which the hardness is gradually dissipated. A smart fillip or blow accidentally given, for few would resort to it purposely, breaks up the texture of furuncles and hordeolum, with more or less discharge, relief of pain, and speedy resolution. Velpeau affirms that cauterization with the solid nitrate of silver, also the application of a leech, will often prevent the development of incipient furuncle. Fosbrooke has given diluted sulphuric acid internally; but I cannot see how it should prove useful.

Anthrax, ἀνθραξ, *Karfunkele*, carbuncle, epinectis, has been shewn by Dupuytren to consist of an agglomeration of furuncles or boils, wherein several of the areolar prolongations are implicated, and rendered sphaculous. The tumour is flatter, and very much larger, the redness of a more fiery character, the constitutional reaction and fever often excessive. The dimensions vary from those of a common boil to those of a large plate. I saw one lately, seated on the back of the neck, and running up towards the nape, of which the vertical diameter was certainly not less than twelve inches. The core or slough was enormous; the discharge of pus considerable; the pulse one hundred and thirty, with occasional delirium. At the same time, the superficial integuments were destroyed, and the marginal hardness and redness, with an erythematous blush far beyond, continued to spread up to the period of the man's death, or about five weeks from the onset of the disorder. In ordinary cases, the tumour conveys a hard and brawny sensation; after a time, a species of fluctuation ensues in the centre; and, if permitted, one or more

openings discharging sanious fetid pus, and decayed shreds of coagulable lymph form in the same situation. Should the disease prove comparatively slight, and the patient hold out, the slough, when the anthrax is small, comes away in one piece, otherwise in separate portions; such fractions of skin as remain, unite with granulations from beneath, and the patient escapes with a puckered irregular cicatrix. Large carbuncles occurring in persons advanced in years, who have lived well, taken little exercise, or whose constitutions are impaired, frequently prove fatal. They are most common in the curso of the spine, but when they ensue on the thoracic or abdominal parietes, have been said to induce pleuritic or peritoneal inflammation. Should it be on the fore part of the neck, with pressure on the larynx and jugulars, we have dyspnœa, headache, and injected vultuous countenance. As to the diagnosis, the foregoing has been termed benignant, in opposition to malignant carbuncle, pustule, anthracion, anthrax malignus, septicus, *charbon maligne*, *Czarna krostka*, or black crust of the poles, *Siberkaja yaswa*, Siberian or northern carbuncle. This disorder is contracted on the hands, face, or other exposed parts of persons who come in contact with animals, as cows and horses, labouring under a hard unequal elevation, with a gangrenous phlyctena on the surface—in fine, the disease termed anthracion, the *Miltzbrand* or *schwarze Blatter* of the Germans. Some patients escape, the affected part sloughing away; while others perish with diffuse local gangrene, general prostration, and all the symptoms of constitutional poisoning. Dogs that eat the raw flesh contract the disease, but men who take it boiled do not. It does not appear to be propagated from man to man. Rayer met with it in Paris, apart from direct epizootic contagion, in persons who wrought with hair from Russia, as well as those who tawed leather. In a case of anthracion of the lower lip, Littré found pus in the veins of the face, and small abscesses in the lungs, doubtless from venous absorption: Rayer and Chabert detected various morbid changes in the intestines of men and animals more or less analogous to the exterior disease. As for the pestilential carbuncle occurring in plague, it has been sufficiently adverted to under the head of that disease.

Bleeding, leeching, aperients, and antimonials, suffice in ordinary anthrax: these, however, are only available at first, and in debilitated persons, hardly so at any time. Rayer prefers compresses dipped in very cold water, frequently renewed; as the disease advances, carrot or other poultices, with occasional opiates, bark and wine, towards the close, may be substituted. When the tumour is small, Lallement advises a circular incision, which relieves the capillaries and puts a stop to the strangulation, the skin thus included coming away with the eschar. Dupuytren and Marjolin recommend a deep crucial incision, which I greatly prefer myself, extending beyond the circumference of the tumour. Rayer mentions the case of a bilious plethoric baron, in whom anthrax with a broad, flat, bloody vesicle, in this respect resembling malignant pustule, three inches in its horizontal, one and a half in its vertical diameter, ensued, with tense, painful belly, and retching, on the anterior inferior surface of the abdomen. A single transverse incision, six inches in length, through the entire thickness of the skin and subcutaneous cellular tissue, giving issue to a quantity of blackish blood, relieved the pain, and put an end to the abdominal complication.

VII—ANASARCA, DROPSY.

THIS disease consists in an effusion of serous fluid, sometimes preceded or accompanied by ascites or hydrothorax, into the subcutaneous cellular tissue. The distention of the areolar cells, between which there is a free communication, is purely mechanical. There is no evidence for the extension, once asserted, of the disorder to the intermuscular cellular tissue. In general, the swelling, then more evident at night, commences in the feet and ankles, gradually creeping up the legs, thighs, loins, belly, face, and upper extremities. The penis, scrotum, and prepuce in men, as well as the labiæ in women, are sometimes greatly enlarged. In a very few, the pericranium is said to be affected, giving rise to the designation of hydrocephalus externus. It may happen that the face and upper extremities shall be first engaged; the whole subcutaneous region, however, may be simultaneously implicated. When the effusion is considerable, the legs become greatly swollen, as well as seamed with blue veins, and from their colour, smoothness, and hardness, bear no distant resemblance to marble. If pressed on by the finger, a dint or depression is left, which does not immediately fill up. The hands and feet, the latter as far as the ankles, in child-bearing and other persons, are sometimes œdematous, without much, if any apparent impairment of the general health. Œdema, to a considerable extent, without amounting to dropsy, often subsists in the legs of chlorotic girls, as well as in those unduly confined to the erect or sitting posture, also persons who keep much on foot. In the neck and upper parts of the back, where the cellular tissue is scarce or firmly tied down, the effusion is always inconsiderable; rolls or swollen bands, however, belt the loins and abdomen. One, or it may be, both hands and feet are swelled, and occasionally hoven up like puff-balls; œdema of the eyelids has been known to close the eyes; the scrotum has become large as a child's head; the penis and prepuce converted into mere sacs of fluid; the latter twisted and impeding micturation; while the labiæ, in similar cases, close the outlet of the vagina and constitute an impediment to parturition. The patient's motions, what from the weight of the limbs and difficulty of flexing the joints, are heavy and lumbering. When the disorder is of some continuance, the fat is gradually absorbed, and emaciation becomes apparent in those points wherein serum is not deposited. The waxen or sallow countenance is sometimes the seat of a faint flush, at other times mottled or curdled, and has a peculiar watery aspect, altogether characteristic of the disease. The skin is dry, the urine sparse, in some cases coagulable, while the pulse is small. In cases of long standing, there is a species of serous exhalation, oftenest from the legs, the fluid standing in drops on the surface; and if acupuncture be practised, a copious exudation, considering the minuteness of the orifices, results. Sometimes I have seen rifts in the epidermis, the latter subsequently exfoliating in large flakes.

Ordinary chronic dropsy comes on slowly, and is of tedious duration. It may subside spontaneously, more commonly through remedial interference, in the same gradual manner in which it commenced. Some-

times, however, it disappears suddenly, in a few instances preceded and accompanied by decided amelioration in the patient's condition, while in others it is but the precursor of speedy dissolution. Andral relates a case of conjoint anasarca and ascites, not to mention others of ascites and hydrothorax, in which the disease had subsisted for two months, but which, after copious sweating and discharge of watery urine for three days, vanished. The disease, however, may subside without purging or any other appreciable evacuation, an occurrence which this writer ascribes to admixture of serum with the blood. After death, under such circumstances, the lungs are apt to be gorged with colourless frothy serum. In other cases, the fluid seems as if translated from one cavity to another; thus, the writer above named describes examples, not to mention others by Carmichael, Portal, Smyth, and Dance, of serum vanishing from the cavity of the peritoneum to reappear in the pleuras or meninges, in the latter with symptoms of apoplexy. In these cases, Ayre thinks it is not so much the effusion as the inflammation that yields it, which is translated. These, however, can hardly be esteemed cases of inflammatory metastasis. Phlegmasia dolens or the swelled leg of puerperal women, is a form of local oedema, produced by imperforate veins. Children at birth, and for some time after, occasionally display a species of anasarca, local or general, combined with an icteroid hue, on which the terms sclerema and induration of the cellular tissue have been bestowed. Breschet and some others have esteemed it a peculiar affection, from the circumstance of the spontaneous coagulation of the serum; Billard, however, has shewn that serum obtained from children not labouring under sclerema, is coagulable; and Blackall mentions the same fact as regards serum taken from the arm of a man affected with dropsy from mercury. As for the general symptoms in anasarca, there are commonly great languor and debility, with more or less disquietude, and disinclination to bodily or mental effort; thirst, and anorexia. Patients are apt to suffer, in winter especially, from cold extremities. In other respects, a good deal will depend on the visceral complications which induce and accompany it. Sometimes pregnancy is combined, of which I have witnessed one or two instances.

Dropsy has been divided into sthenic and asthenic, symptomatic and idiopathic, a distinction for which there are good grounds. Idiopathic dropsy was formerly considered frequent; but in the majority of instances, however, dropsy in the chronic or asthenic forms, more especially, is symptomatic of some anterior or concurrent morbid alteration. Nevertheless, it seems, in a few instances, to ensue without appreciable organic lesion. Andral mentions several women labouring under uterine cancer, who were attacked, during the last months of life, with complete infiltration of the subcutaneous cellular tissue; beginning in some in the face, in others in the hands or feet, yet in whom, after death, there was no other organic evidence of disease. A woman of four and twenty, entered La Charité with ascites and anasarca, which had come on after confinement. The different organs were nearly bloodless, but otherwise healthy. Another female similarly affected, died progressively exhausted, with no local affection beyond a trace of softening in the gastric mucous membrane. Again, a countryman came in with dropsy of the belly and subcutaneous cellular membrane.

also diarrhoea. Death was preceded by erysipelas and gangrene; but though nearly anemic, the viscera were, in other respects, sound.

Dropsy after scarlatina or other febrile eruptive disorders, is commonly sthenic in character and rapid in progress. The skin resists the impression of the finger, and is not always pale or cold; the pulse is quick, in a few instances slower than in health, while the urine lets fall a brick-red sediment. It is usually in the form of anasarca, and may be confined to the lower extremities, display itself as a slight puffiness in the face, or, as Wells observes, in the hand; at other times the whole subcutaneous cellular tissue is invaded. I have met with it when the eruption was absent. Ascites may ensue in place of anasarca; I have witnessed this occurrence, further recorded by Blackall and Andral. Death is sometimes preceded by convulsions; and Wells has seen dangerous symptoms, the head being affected, so early as the third day. Abercrombie relates fatal instances from apparent metastasis of dropsical effusion into the cavities of the pleura and peritoneum. Burserius, not to repeat instances already related under the head of scarlatina, adverts to pulmonary and other forms of visceral inflammation. Andral thinks that scarlatinous dropsy, notwithstanding the coagulable urine, arises from suppression of the cutaneous transpiration; Rayer, as I have elsewhere shewn, ascribes the disease to altered renal secretion, owing to lesions already described, an opinion, however, to whose exclusiveness time will probably bring some modification. In fact, the disorder once subdued, coagulable urine is seen no more; nor is there, as in many other cases, any further evidence of renal disease than before the scarlatinous affection subsisted. In other respects, acute or inflammatory dropsy runs a rapid course, beginning with hot skin, flushed countenance, quick pulse, sparse coagulable urine, dyspnoea, great anxiety, and, within a period varying from four and twenty hours to three days, infiltration of the subcutaneous cellular tissue of the trunk and extremities. The disorder often far from serious, rarely, perhaps, immediately fatal, has no fixed course, but differs with the constitution of the individual and severity of the attack. In severe cases in India, however, it is said to destroy the Lascars in a couple of days. This, I should conceive, is the disease known in Ceylon and on the coast of Malabar, by the term beriberi, first described by Bontius, subsequently by Marshall, Christie, Colquhoun, and Hamilton. It is common among Europeans, soldiers, and others, addicted to debauchery, or whose avocations entail exposure to the night winds; officers, boys, and women were comparatively exempt. In this acute species of anasarca, very different from the chronic paralytic affection termed barbiere, effusion was frequent in the internal serous cavities, as well as under the surface. I have met with numerous cases, some associated with cardiac or tubercular disease, others thus uncomplicated, with urine perhaps coagulable by heat, or the addition of nitric acid. Indeed, since I have made it a practice to subject this excretion to these tests, I obtain this result much oftener than I could at one time have anticipated. Barlow mentions a case in the Bath hospital, in which the urine, by heat, coagulated into a solid mass. Coagulable urine, I conceive, may subsist in acute cases, without any serious renal impairment; in chronic forms, however, the presumption of degeneration of the kidney, if not quite certain, is greatly increased. Abercrombie

would connect acute anasarca with inflammation of some viscus, the lungs, for example; and Darwall speaks of dropsy supervening on chronic bronchitis. While tracing these pages, rapid fatal anasarca manifesting itself almost simultaneously in the feet, hands, and face, in an aged serving woman, labouring under recent acute bronchitis, came under my notice. I do not believe, however, that inflammatory dropsy, so named, is necessarily connected, either with inflammation of the kidneys or that of any other viscus. Ayre would refer this form of anasarca to inflammation or irritation of the subcutaneous cellular tissue; obstruction to the cutaneous transpiration, from cold and other causes, however—anidrosis, as Osborne terms it, seems often fully adequate to the production of the disease. The blood is cupped and buffed, particularly in those cases which ensue during repeated or protracted courses of mercury, of which Blackall relates several examples. Foderé adverts to the rapid production of anasarca from exposure to wet and cold after forced marches, passing Mount Cenis in winter, swimming rivers and the like. Blackall, among others, describes the case of a stout man, with sallow bloated countenance, who contracted extensive anasarca after drinking a large quantity of cold water while heated by harvest labour. The pulse was ninety and corded, the urine coagulating at low temperatures; the blood, though watery, covered with a thick firm buff. Large doses, daily, of crystals of tartar were exhibited, after which the urine became less coagulable, the patient recovering in a fortnight or three weeks. In one very well-marked case of inflammatory dropsy in a lady, whom I saw in consultation, the disease was incurred in consequence of walking home heated from a party, through the wet, in thin light shoes. The feet and ankles began to swell, then the hands, face, and eyelids, for a week before her own attention, and that of her friends, was attracted. Lastly, acute fever, with hot skin and great dyspnœa, ensued. Bleeding, purging, and digitalis were freely resorted to; and recovery complicated with abortion, was realized with difficulty. In other respects, Bateman mentions acute anasarca from terror; and Darwall has known it to follow parturition, the belly, in a few days, being large as before delivery.

Cachectic dropsy, or dropsy ensuing in the broken-down or debilitated, is probably, in most instances, the result of undetected structural change. As cases, however, subsist, in which the latter is not evident, we are obliged to ascribe the disease to functional disorder alone. Under such must be comprised dropsy from loss of blood, as well after scorbutus and other lowering maladies. I have met with it in the former, also from privation of an habitual stimulus. Functional disorder and structural change, after all, are but the commencement and the terminus of one long morbid catenation: when one subsists any time, the other is almost sure to begin. Anasarca is but too common a result of organic disease in the heart. The feet, hands, face, may be simultaneously, oftener successively, affected. In a young lady now under my charge, long a victim to valvular disease, the feet began to swell first. Her complaint having been aggravated by exposure and supervention of endocarditis, now somewhat subdued by leeching and other means, her face has become swollen and florid, so as, in a measure, to simulate the aspect of health rather than of disease. Not infrequently, cardiac disease is wholly overlooked, till anasarca, more

rarely ascites, hydrothorax, and, possibly, hydropericardium, draw attention to its existence. Dilatation and hypertrophy, with or without auriculo-ventricular narrowing, are signalized by Andral as precursory of dropsy. He has met with it coincident with almost complete obliteration of the right ventricle, the gorged auricle being unable to evacuate its venous contents into the cavity designed by nature to receive them. Auscultation did not reveal cardiac disease in life, nor was the dyspnœa ever very considerable. In another class of dropsical subjects, we have hypertrophy with dilatation or narrowing of one or both left cavities, with or without obstruction at the aortic or mitral outlets. Imperfect aortic valves signalized by bounding of the larger arterics, and attended by regurgitation from the aorta into the heart, appear to Osborne among the more frequent cardiac diseases of advanced life. Here we may have both ascites and anasarca, but the cases are so common in which valvular incrustations and ventricular hypertrophy subsist without any such sequence, that we are forced, with Andral, to the conclusion, that dropsy and cardiac disease may often prove a pure coincidence. Indeed Genest, in a paper in the *Gazette Médicale* for 1833, tries to shew that cellular effusion accompanying organic lesions in the circulating apparatus, may prove a mere concomitance; inasmuch as the latter often subsist without the effusion, while at other times this disappears, the others persisting, or even becoming inveterate. When, however, the cavity of the left ventricle is small, with aortic valvular narrowing, we conceive very well that the left auricle cannot properly discharge its contents; hence, in succession, engorgement of the lungs and right side of the heart, with serous effusion in the extremities. Both sides may be simultaneously dilated and enormously enlarged, with narrowing of the outlets; and the left ventricle may be so developed that the right, as Andral remarks, appears little better than a sort of appendage, quite insufficient to contain the blood that should flow into it. He conceives that in dropsy from lesions of the right side, effusion precedes dyspnœa; but if of the left, that primitive dyspnœa may subsist for years. In other respects, dropsy and dyspnœa may come and go before either becomes permanent. I have witnessed cardiac disease of every variety and in every degree, without dropsical deposit; and at other times I have seen the latter, in the most aggravated form, wholly vanish before death. Even when it does ensue, cardiac disease subsisting at the time, it may not be till after the supervention of pneumonia, bronchitis, or some gastro-enteric affection. The effusion is usually slow in progress, but Andral mentions a case in which anasarca and ascites having preceded, double hydrothorax ensued in fifteen hours. In a few instances, the latter is the only hydropic lesion. It is well to inquire whether dyspnœa precede or follow the ascitic or anasarcaous deposit, since it is readily induced by upward pressure on the diaphragm. Chomel has known anasarca a primitive symptom of pericarditis, an occurrence readily conceivable in chronic pericarditis, in which the heart is compressed and the circulation oppressed; just as anasarca is sometimes occasioned by dropsy in the splanchnic cavities, owing to the pressure which the mass of liquid exercises on the heart and great vessels. Here the swelling commonly manifests itself, in the case of hydrothorax at least, in the

neighbourhood of the cavity implicated, and affects the corresponding side of the body before it becomes general.

The influence of venous obstruction in the production of dropsy appears to have been exaggerated; for, as Ayre observes, though there be numerous instances of abdominal dropsy in those who labour under diseased liver and spleen, still the latter often subsists without the former. Furthermore, the cava has been found obliterated in one case, and greatly distended from diminished capacity of the left ventricle obstructing transmission of blood through the heart, in another, without any dropsical effusion whatever. It is well known, nevertheless, that œdema ensues in the lower extremities from pressure of the gravid uterus on the iliac, and I doubt not from that of impacted feces on the hemorrhoidal veins. Indeed Sabatier has recorded its occurrence in the left leg, from pressure of an impacted fecal tumour on the pelvic veins of that side. The effects of venous compression are often neutralized by enlargement of the collateral circulation; and this is the reason why so little effect is produced by tying veins in the dog, although Lower induced a species of ascites after placing a ligature on the ascending cava, and Magendie simulated ascites by injecting water into the veins of the same animal. Bouillaud observes, that as obstruction in the course of the venous circulation may produce serous effusion, so the same obstruction, unless relieved by an anastomotic outlet, constitutes a serious impediment to its removal, the absorbent function of the veins, as demonstrated by Magendie, being taken into account. Lamotte gives the case of a girl of eight, in whom fatal hydrocephalus and hydrothorax arose, apparently in consequence of two abscesses and two hard tumours, each large as a pigeon's egg, which compressed the descending cava. Dance mentions a woman in whom, for six months, œdema, with jugular turgescence, was confined to the face, neck, upper part of the chest, and arms, the belly and legs being flat, dry, and atrophous in comparison; from all which, it would appear that there must have been obliteration of the superior cava. In a case of menstrual suppression from fright, this writer relates that the anasarcaous swelling spread from above downwards. Darwall gives two instances in which œdema of the extremities, with tenseness of the femoral veins, implying local phlebitis, yielded to leeching. In a case by Bouillaud, the infiltration extended from the lower extremities to the armpits; after some time, the œdema of the trunk and scrotum was dissipated, when the veins of the abdominal parietes became enlarged and almost varicose. After death, the inferior cava was found obliterated. Lozes, not to mention curious examples by Reynaud, also describes abdominal varix with similar obliteration of the same great vessel. Dropsy from compression of the thoracic duct or lymphatic vessels, cannot be said to be proven. Portal, Itard, and others, have adverted to œdema in paralytic limbs.

Splenic, ovarian, uterine, and mesenteric degeneration, probably exerts an occasional influence, whether direct or indirect, in the production of anasarca; but that of renal and hepatic disease is unquestionable. Ascites, however, is a more frequent result of hepatic disease than anasarca, and, in such case, commonly precedes the occurrence of the latter. It seems now pretty well established that coagulable urine, in acute anasarca at least, may ensue with recoverable functional dis-

ease of the kidney; also, that albuminous nephritis, so named, may take place without dropsical effusion. Indeed it appears that coagulable urine, albuminuria, is no certain test, since it may be temporarily induced by certain medicinal agents, transitory diseased conditions, and various articles of food, without any other evidence of renal disease. I have met with coagulable urine in anasarca cases that were conjoined with pulmonary or cardiac disease; also in young subjects whose lives, in other respects, had not been such as to impair their constitutions. In a case of anasarca in a veteran, with urine unusually coagulable, recently under treatment, the man, so far, has made an excellent recovery. Fever occasionally subsists, but, as Bright and others observe, there may be marked debility so as to preclude the idea of active inflammation, and to indicate the administration of bark and steel. Anasarca is the form of dropsy oftenest connected with albuminous urine, and here, as Osborne remarks, the skin evinces obstinate obstruction. He relates a case, combined, as were many others, with disease in one or more of the great cavities, in which the urine coagulated by heat almost into a solid mass. I have met with instances of extensive anasarca infiltration, in which effusion had extended to the chest. In one of Andral's cases, published, by the way, before Bright's important views, so ably followed up by Rayer, had seen the light, the only discoverable lesion was conversion of the cortical, and part of the tubular substance into a whitish tissue, marked by little grains or masses separated by the remains of the natural reddish tissue of the kidneys. Of the changes of structure, enlargement, red marbled colorations on a whitish base, and yellowish or milky points termed granulations, the latter are esteemed to be oftenest associated with coagulable urine and with dropsy. Wells, indeed, had early noticed the connexion of albuminous urine with dropsy, but had not associated it with any special renal structural change. Since then, the writers above named, as well as Gregory, Christison, Sabatier, Graves, and others, have zealously investigated this important subject.

The utility of blood-letting in acute inflammatory dropsy, whether the effusion, so termed, arise without local inflammation in plethoric subjects, or be combined with it as a concomitance or consequence, is equally incontestable. The quantity abstracted, whether by leeching, cupping, or venesection, will vary with the patient's strength, and the severity and recency of the attack. The blood, though commonly, is not necessarily cupped or buffed. The circumstances which, according to Osborne, appear to afford the strongest indications for blood-letting, are a full undulating pulse, resembling what occurs in nephritis, with pain and weight in the kidneys, and bloody urine. Ayre, who esteems anasarca to reside in inflammation of the cellular tissue with serous deposit, advocates sanguineous depletion more decidedly than most practitioners. He admits, however, that the most common form of anasarca is that symptomatic of visceral disease; and passes the important remark, that its occurrence in the idiopathic form obviates effusion into the brain, chest, or abdomen. Hence general anasarca after cold and scarlatina, or when it proves vicarious of some required evacuation, is seldom succeeded by effusion into the large cavities; or if such do ensue in one of these, the œdema is commonly inconsiderable. Conformably with these views, Ayre advises the application

of leeches to œdematous swellings with local inflammation, whether idiopathic or symptomatic, followed, in twelve hours, by cold evaporating lotions. Some even advocate blisters. There is inflammation of the cellular tissue with œdema, in œdematous and phlegmonous erysipelas, but I altogether doubt its occurrence in ordinary acute anasarca; leeching, therefore, can do little more than relieve the distended cellular tissue, principally of its serous contents; and as the bites do not go deep, they are rarely productive of sloughing sores such as are apt to ensue after lancet punctures and incisions. The author, indeed, swerves from his own principles, as in the case of a servant girl who laboured under prodigious anasarca and ascites, induced by washing a cold damp stone floor on her knees, wherein he confined himself to treatment calculated to promote absorption of the effused fluid. Whatever general means we employ, however, whether bleeding, purging, diuretics, or sudorifies, one or more, we must not forget that they are supplementary of each other, and alike tend, with varying success, to the object we have in view.

In the treatment of anasarca, combined or not with ascites, the greatest attention must be paid to the character, so far as it can be ascertained, of the disease, as whether it be acute or chronic, inflammatory or asthenic, idiopathic or symptomatic, primary, consecutive, or concomitant; whether the heart, liver, kidneys, or other organs, one or more, be affected. Œdema of the extremities, as met with in chlorotic subjects—those in whom the menstrual discharge is absent or scanty, will generally be relieved by mild aloetic aperients, with steel in any of its various forms. In chronic dropsy, before I was able to venture on a single diuretic, or administered a single hydragogue, I have again and again found it necessary, in weak anemic subjects, to give tonics and restoratives, as well as to permit a liberal allowance of meat, and porter or wine; after which, anasarca or ascitic deposits, sometimes temporarily, often permanently, were removed occasionally, in extreme cases even, with singular rapidity. Diuretics and purgatives, in fact, are essentially debilitating, and, without the precautions to which I have adverted, ill calculated to realize the intentions of the prescriber. On the other hand, more especially in the richer classes, we meet with patients in whom stimuli of all kinds, and nutritive diet, have been prodigally resorted to, and with regard to whom we shall find it expedient to substitute a milder and less succulent regimen. These cases, however, require consideration: the patient must often be permitted to take, not what we would have him, but what we can get him to eat. Sometimes, too often, alas, the appetite flags and totally fails, the most powerful remedies become inoperative, tumefaction reaches its height, diarrhœa perhaps supervenes, and the miserable despondent sufferer, tormented by intolerable dyspnœa, from upward pressure of the diaphragm, hydrothorax or hydropericardium, sinks into a stupor and expires.

The purgatives advisable in anasarca, are varied according to the views and experience of practitioners, some recommending one, some another. In ordinary cases, I find the compound powder of jalap from two scruples to a drachm, with four or six grains of squills, and a little ginger, a very efficient combination. Digitalis, a couple or three grains at a time, may be added when it can be borne, to all the aperients.

These may be administered in one large dose, or what is preferable, a succession of smaller ones gradually increased, for the simple reason that what is nearly inoperative in one person, produces excessive effects in another. I have met with cases in which calomel, in moderate doses, while it acted on the bowels, was more efficient than anything else, in promoting a discharge from the kidneys. I generally, however, combined it with squills or digitalis, or in smaller quantities, with powdered gamboge. The supertartrate of potash alone, or associated with squills and digitalis, is a mild and deservedly favourite remedy. Of croton oil as a hydragogue cathartic, I have had little experience: Copland recommends half a drop made up with soap and compound extract of colocynth or the myrrh and aloes pill, every two or three hours, till it operate copiously. I prefer elaterium, beginning with the fourth of a grain well rubbed up with cream of tartar or sulphate of potash, and made into pills with bread crumb, syrup and liquorice powder, soap, or some other purgatives, repeated at sufficient intervals. Extraordinary effects have accrued in my hands from the careful administration of this powerful substance, which seems in a measure to drain away the effused fluid. It is however variable in its operation. I have had cases in which a quarter of a grain purged smartly; others, again in which two grains, even, produced little or no effect. The influence of profuse serous purgation, was singularly exemplified during the choleroïd epidemic in Paris, where persons were completely freed from their dropsies under the influence of the disease. Bouillaud, who records this curious fact, has omitted to state whether any of the patients recovered. The extract of black hellebore, united according to Bacher's formula, with myrrh and carduus benedictus, I have found variable or inert; I have no doubt however, could hellebore be obtained pure and recent, it might prove of considerable efficacy. In emetics I have no confidence. Purgatives combined with diuretics, I find much more efficacious, than the latter alone, to which I have given a very extensive trial. Could diuretics be depended on, they are obviously less debilitating than cathartics, but they have been sadly abused, and some go so far as to say, that their undue employment, has even been occasionally productive of dropsy. The powder, watery extract, infusion and tincture are the forms in which digitalis and squills are mostly administered. As digitalis occasionally accumulates in the system, it is expedient, when given for some time without much apparent effect, to discontinue it. Blisters to the stomach, and laudanum in warm brandy punch, have been recommended by Withering in cases in which this substance has produced its peculiar poisonous results. The young practitioner indeed should be aware that sickness, collapse, and death, are results that have ensued oftener than once, from the unguarded employment of this active drug. Blackall, indeed, avers that the most experienced practitioner he ever knew, assured him that he would never again order digitalis in dropsy unless he had the means of visiting his patient daily. Terebinthiuates, as turpentine and copaiva, more especially when there were bronchitic affections, made into an emulsion with sugar, gum Arabic, camphor mixture or cinnamon water, have been found useful by some. Cantharides, even, from a quarter of a grain, to two grains, proved serviceable in the hands of Lieutaud. Colchicum in its various forms, is both diuretic and purgative; but its value in other

diseases is much greater than in dropsy. Coster recommends from five to fifteen drops of a combination of six grains of the hydriodate of potash, and three grains of iodine in an ounce of water, given in any agreeable vehicle: also dressing blisters on the thighs with an ointment composed of half a drachm of the hydriodate of potash, and fifteen grains of iodine in an ounce of lard, rubbing the feet with the same.

Sometimes it will be expedient to intermit purgatives and diuretics, or to combine them with chalybiates or other tonics. Dover's electuary, which is a compound of sulphuret of iron, antimony, scammony, and syrup, purges the patient agreeably, and has often wrought a permanent cure. The sulphate of quinine is advantageously combined with squills. A small proportion of opium or hyosciamus is a useful adjunct in the event of diarrhœa or otherwise. Indeed opium has the suffrage of more than one practitioner. Willis, Mead, and Heberden have known it to cure anasarca; and *quare* writes Home in his *Principia, opiata urinæ profluvium adaugent, et morbum sæpe tollunt*. If dropsy could be cured by sweating, vapour, or hot air baths, and Dover's powder, it would be the most agreeable, and probably, the least exhausting of the different remedies made use of. Heberden ascribes the removal of anasarca by opium, when successful, to the diaphoresis which it induces. Cajuput oil has been given in India, on a similar principle, with favourable results. It is an important indication in ordinary dropsy, to maintain warmth by wearing flannel, or as Ayre prefers, washleather, next the surface. I have made some patients put on a couple flannel waist-coats with chamois over all. Osborne attaches, and justly, great importance to this practice. He often kept the patient entirely in bed: and he has frequently observed an improvement both in the quantity of the urine and subsidence of œdema, by means of external heat alone. This was followed up by a simple purgative, as the senna mixture, succeeded by foot and hip baths with water or vapour baths in the evening, the patient taking on going to bed, eight grains of James', and four of Dover's powder, in ten grains of aromatic confection; if this did not sweat, an ounce every hour of a mixture containing four ounces of Mindererus' spirit, one of sulphur, a drachm of the wine of ipecacuanha, two grains of the watery extract of opium, fennel water and treacle each two ounces. Ammoniated tincture of guaiacum, if necessary, promoted perspiration in the bath; but when cold extremities ensued, both vapour and warm baths were discontinued. A draught composed of two drachms of the ammoniated tincture of guaiacum, sulphur one drachm, camphor mixture an ounce, spirit of pimento half a drachm, or camphor mixture six ounces, carbonate of ammonia half a drachm, an ounce every two hours, bags of hot salt to the feet, and copious frictions of an infusion of two drachms of mustard seed in distilled vinegar, with naphtha or the like, were additional succedanea. This writer adverts to his success whenever the entire surface was restored to a perspiring state; but the accomplishment of this though so highly to be desiderated, is one of the greatest difficulties we have to encounter in anasarca. In every case of dropsy the patient may take diluents at discretion; the old practice of withholding drink, was barbarous as it was useless. In extreme cases of anasarcous distention nature attempts relief by a kind of serous epiphora. Here, we afford farther relief by resorting to acupuncture, much on the principle that

we would perform paracentesis in ascites. I have thus by means of twenty or thirty punctures, occasionally repeated, in the scrotum and penis, even, as well as elsewhere, induced a considerable discharge and corresponding relief. They should not be resorted to where there is erythematous redness; in other respects, lancet punctures or incisions are dangerous and reprehensible. I witnessed anasarca distention of the scrotum, fully equalling a child's head, with recovery. This occurrence, however, is too generally the precursor of death. Bandaging prevents in part, infiltration of the lower extremities; to a moderate extent, it may prove useful; but when irksome, must be discontinued. As for the cure or relief, an important indication in dropsy, of primary diseased conditions, whether of the heart, liver, or kidneys, I must refer to those portions of this work where they are severally treated of. Something may be done at times, in the way of prevention. A lady was so distressed during successive pregnancies, by excessive and increasing anasarca oedema of the lower extremities, that I advised her for a time, to live *absque marito*, an indication that was perfectly found to realize its purpose. In other respects, the treatment of anasarca and ascites, so often combined, presents many points in common, which it is neither practicable nor desirable to separate.

VIII—OSTEITIS, PERIOSTITIS, CARIES, NECROSIS.

BONE may become preternaturally hard or soft; it may prove the seat of various morbid processes, or lose its vitality altogether. The investing, and, probably the lining membrane, is liable to inflammation. Periostitis, inflammation of the periosteum, implicates, more especially, the superficial bones, as the sternum, tibia, cranium, in all which situations I have had occasion to meet with it. Wounds, blows, and surgical operations, are frequent sources of periostitis; it may also result from gout, scrofula, syphilis, scorbutus, rheumatism, and phlegmonous erysipelas; but I have seen it ensue in the heel and elsewhere, without any appreciable cause. Necrosis and caries, when superficial, are attended with periostitis: here, as Blandin remarks, inflammation precedes the formation of new bone. Periostitis is marked by pains, particularly at night. If very acute, a purulent secretion separates the membrane from the bone, and, perhaps, induces caries or necrosis in the latter; in other cases, when moderate, a plastic matter, successively converted into cartilage and bone, is secreted; hence, as Beclard observes, the origin of syphilitic exostosis. From the soft pasty feel of periostitic tumours, the term gum is sometimes popularly applied. Inflammation in, or extending to the bone, implies the existence or supervention of osteitis. Caries is the termination of osteitis by suppuration, necrosis its termination in gangrene. In caries, the bone, though undergoing ulceration, is alive, whereas in necrosis it is dead. Bony fragments, however, of which the organic portion has been destroyed, occasionally escape in caries. It sometimes, indeed, happens that a bone is carious in one point, and necrosed in another. Caries or exfoliation of the periphery, must not be mistaken for necrosis. Caries tends to indefinite progress; necrosis, however, once the dead bone or

sequestrum has been rejected or extracted, is at an end. The causes of osteitis are those of periostitis. The spongy tissue is more liable to caries than the compact; the bones of young persons, as I have had too frequent occasion to observe in case of scrofula in the hands and feet, than those of the aged. The absorption of the osseous structure from pressure or morbid growths, aneurismal tumours, and the like, and that of the fangs of the deciduous teeth, is in no wise to be confounded with this morbid process. Caries may ensue on the surface or in the substance. In the first case, the affected part becomes soft and is covered with red or brownish spots, while the inflamed periosteum ceases to adhere, and is readily detached in the vicinity. At a more advanced period, the bone becomes soft, uneven, yellowish, and readily penetrated by the probe, while a sanious purulent matter escapes by one or more orifices. If an articulation prove the seat of the disorder, the cartilage is apt to be separated. Subsequently, the bone becomes black and earthy, and is either removed by gradual absorption or washed away by the purulent discharge. When caries is not very deeply seated, a superficial tumour ensues, the cancelli enlarge and fill with the morbid secretion, while the bone becomes so soft as to be easily divided with a knife, or even displaced by the finger. The disease is fusiform in the shaft, uniform when an epiphysis or the centre of a short bone is affected. Nature sometimes attempts to support the part by new formations springing from the affected point, or from the periosteum. Jules Cloquet saw four vertebræ thus replaced by a new bony cylinder pierced with holes for the issue of pus. One of the most striking results of caries, according to the researches of Delpech and Berard, is the conversion of the organic tissue of the bone into a kind of fatty substance. The disease may terminate spontaneously or through the intervention of art, or it may extend from point to point, till the patient sink from profuse discharge and hectic fever. Cloquet mentions cases at the hospital St. Louis, after repeated mercurial courses, in which there were simultaneous carious abscesses in the arms, forearms, wrists, thighs, legs, sternum, clavicles, and pelvis. The treatment of carious osteitis varies as it is connected with syphilis, scrofula, or scorbutus. I have repeatedly stayed the progress of periostitis by frequent leeching, and blisters often renewed: too often, however, these measures prove of no avail. After puncturing the preliminary abscess, the most efficient, energetic, and certain application, according to French practitioners, is the actual cautery. The iron is to be raised to a white heat; and the soft parts being separated and covered with moist linen or paper, we are directed notwithstanding the cries of the patient and fumes of the process, to press firmly till the diseased surface become dry, black, and converted into an eschar or sequestrum, which falling off, removes the disease along with it. Sometimes this procedure has to be repeated several times at suitable intervals. Should the malady be deeply seated, it may be requisite to remove the diseased portions, in a great measure, beforehand, with the trephine or mallet and chisel. When caries, however, implicates the cranium, breast, pelvis, or joints, the cautery is inapplicable: amputation, or resection, as I have witnessed in the practice of Boyer, may sometimes prove expedient. In two of my own patients, the actual cautery—in the hands of Mr. Crampton in one case, the other in

in my own, removed non-syphilitic exostosis of the tibia with the lameness which it had induced. In whatever way the cure of caries is effected, healthy granulations spring up, coalesce, and form a cicatrix with a fibro-cartilaginous aspect.

As already stated, caries affects the spongy texture, necrosis the compact; and I am greatly inclined to think that much of the difference between these two terminations of inflammation, depends on the seat of the disease. The greater vitality of the spongy tissue, its better provision with blood-vessels, inferior density, and consequently increased scope for morbid action, tend to perpetuate the malady under the form of caries; whereas the vitality of the harder portions is promptly destroyed, a slough or sequestrum ensues, which enveloping, as it were, the seat of the disorder, brings it to a close. The shafts of the long bones, those superficially seated especially, the cranium and jaw, though the flat bones be not exempt, are the parts most subject to necrosis. One patient, when I saw him for the first time, was lying, with a hot skin, quick pulse, nearly insensible, while a tumour, resembling hernia cerebri, consisting of clotted blood, covered a necrosed portion of the occiput. Necrosis from scrofula mostly occurs in young subjects. The decayed bone assumes a black colour when exposed to the air. Fistulæ ensue at an early period: a probe, and sometimes the finger, can be passed through them, by which the rough denuded bone may be felt, leading to the presumption of its death. Should it prove loose on contact, or should the portion actually protrude, there can be no question as to the nature of the case. Necrosis, always tedious, is rarely fatal: in the lower jaw, a bone in which restoration is more rapid than in any other, and clavicle, it is never dangerous. Two truly interesting stages, that of elimination or expulsion, and that of reparation, are observable. Wonderful examples of both are recorded by Harvey, Weidmann, and others. The necrosed portion acts on the living as a foreign body; the contiguous periosteum and bone swell; superficial absorption follows; fleshy granulations, isolating the dead bone, spring up, and on the expulsion of the sequestrum, a cicatrix is formed. When reproduction takes place, coagulable lymph, or a kind of reddish jelly, is poured out, as the experiments of Troja would seem to indicate, by the old periosteum. This, at first, assumes a cartilaginous, then a bony consistence; cells form in which ossific matter is deposited; lastly, a new bone, sometimes larger, sometimes smaller, than the original, the muscles becoming attached through the intervention of the periosteum, is the result. It would appear that the dead bone sometimes undergoes partial, if not complete absorption, before it spontaneously, or with artificial aid, escapes through the small cloacæ, gutters, or openings, subsisting in the new bone. Some contend that the internal or medullary membrane concurs in the production of new bone; and certainly when the periosteum, in such cases, happens to die, this would seem unavoidable. If the sequestrum do not escape, or be not removed, it proves the source of a purulent discharge that may wear out the patient. A young boy was recently brought me from the country, in whom a new tibia, with the contained sequestrum, had given rise to considerable tumefaction, numerous orifices, and copious discharge. Fatal ossific phlebitis has been known to ensue. Sometimes the new bone is so weak as to bend beneath the weight of the

body, thereby, perhaps, facilitating expulsion of the sequestrum. In a few instances, as we find from Russel, a spongy matter gradually converted into bone, occupies the interior of the shaft; and it is further well established by Köhler and others, that the medulla may be reproduced.

The treatment varies according to the parts implicated. When cavities containing sequestra extend to the joints, amputation, once too common, becomes necessary. Otherwise, the more usual practice is to expose the bone, and by means of circular or other saws, trephines, and even the mallet and gouge, to enlarge the sinuses or cloacæ, or to make fresh apertures, so as to facilitate expulsion of the sequestrum. Osteitis and necrosis of the external table of the skull, are much more frequent than of the inner, wherein the disease, if it do not extend all through, may be overlooked. In this last form, we may have epilepsy, paralysis, convulsions, coma, amaurosis, or deafness. Occasionally meningitis supervenes, more especially in case of osteitis extending from the inner ear, and proves fatal from purulent effusion between brain and dura mater. In the event of endo-osteitis with absorption of both tables, a soft fluctuating tumour appears, which ultimately gives way; here pressure fails to facilitate the discharge. In case of necrosis, large portions of the outer table have been known to exfoliate. Should external exostosis be productive of no inconvenience, it is well to let it alone; but should convulsions, epilepsy, or paralysis indicate pressure on the brain, Sanson recommends circles of trephines, each impinging on the other, so as to detach the affected portion. What from pain and irritation, however, what from a bony prolongation wounding the brain, and what from collapse ensuing after the removal of pressure, the operation has sometimes proved fatal. In necrosis of the outer table, I have been able to raise the blackened portions by means of an elevator, leaving the cells of the diploe bare, and filled with a honey-like fluid. Here I have applied the muriate of antimony, dilute nitric acid, and the like, by means of a camel's-hair pencil, with little or no advantage.

Osteitis of the sternum ensues in scrofulous and syphilitic subjects, as well as from external violence, pleuritis, and, it is said, inflammation of the exterior mediastium, mediastinitis. The bone, in these cases, is a good deal swelled, the disease remaining stationary, or terminating in resolution, caries, or necrosis. A case is recorded by the celebrated Harvey in which the heart was exposed by destruction of the sternum. Here we are to lay back the skin, if sound, in flaps, by means of a crucial incision, if unsound, including it, after which the diseased bone is to be removed by a trephine, once or oftener applied. The internal mammary artery is set aside with the soft parts, but if wounded, may be tied. Osteitis, when seated on the anterior extremity of the ribs, according to Sanson, generally extends to the accompanying cartilage; but if the posterior extremity of the bone be affected, the transverse processes of the vertebræ are apt to be implicated. In some instances, the whole bone suppurates, the thickened pleura separates, forming the basis of a purulent focus. In the former case, the trephine may be applied; in the latter, the soft parts being isolated, a thin plate of lead or wood is passed between the pleura and rib, while the decayed portions are separated by means of a small rounded saw. In cases of inveterate mammary cancer, I have seen the disease extend

to one or more ribs, constituting consecutivo osteo-sarcoma or cancer of the bones. In other respects, osteo-sarcoma principally affects the bones of the face, head, and spongy extremities of the long bones, and the ilium near the articulation of the femur. I once beheld a shocking instance of osteo-sarcoma in a poor and aged woman. The greater portion of the os frontis was destroyed, leaving a depression or cavity on the anterior lobes of the brain, which were quite exposed, with fetid discharge. Here the intellect was altogether unimpaired. I have also witnessed repeated instances, with frightful ravages, in the bones of the face. The pelvis, its inner surface more especially, sacrum, crests, spine of the ilium, and tuberosity of the ischium, on account of their spongy texture, are all liable to osteitis. As regards the diagnosis, we have to inquire when any large, fluctuating, colourless tumour appears on any point of the circumference of the pelvis, whether it was long preceded by dull, deep-seated pain in the spongy structure of the bones. Abscesses from caries on the inner surface of the sacrum, it is observed by Sanson, point at the anus, perineum, or nearest part of the hip; while those from caries of the inner surface of the ilium, its spine, or the tuberosity of the ischium, may fuse as far as the inner surface of the thigh. I have recently advised the evacuation of a large abscess in this last situation, and apparently thus originating, in a very scrofulous subject. Osteitis, whether from synovitis or originating in the bone itself, may implicate the different joints, and induce caries, with abscess, hectic, exhaustion, and death. In some cases, whether by means of false membranes, fleshy granulations, or actual bony soldering, ankylosis, partial or complete, ensues. Occasionally we have spontaneous dislocation, the old articular cavity filling up; sometimes a new joint forms. Rust applies the term *cleidarthrocace* to osteitic inflammation of the sterno-clavicular, *oarthrocace* to osteitis of the scapulo-humeral articulation; *olecranarthrocace* to osteitis of the elbow; *cheirarthrocace* to osteitis of the wrist; *coxarthrocace* to osteitis of the hip; *gonarthrocace* to white swelling of the knee; and *posarthrocace* to osteitis of the ankle. In false or imperfect ankylosis, the practitioner attempts to restore action to the joint, and flexibility to the muscles, by frictions, champooing, and graduated motions. In case of fracture, the joints, in ginglymoid articulations more especially, must not be left too long immoveable. Barton of Philadelphia, in one instance, restored motion to the hip by a rather risky operation. Practitioners when they anticipate ankylosis, are, in general, content with placing the joint in a favourable position. Thus the lower jaw is kept a little depressed; the leg, thigh, and toes, extended; the foot at right angles to the leg; the arm pendant, and a little separated from the trunk; the forearm half prone, half supine; the hand, in the direction of the forearm, half flexed, and the head erect. At the same time, the joint is to be maintained in a stato of absolute rest, and every means employed to avort or remove local inflammation.

Caries of the spine, from the tense and swollen aspect of the integuments, received at one time the denomination, unfortunately extended to caries in other parts, of *spina ventosa*. Osteitis may commence on the exterior, or in the centre of the bone, and rarely implicates more than one or two of the vertebræ. Central osteitis, most common in scrofulous subjects, is less painful than the other. In either case, the part becomes swollen,

and the trunk bent forwards; occasionally lateral curvature ensues, and great mischief may arise before the disease is detected. Strumous vertebritis occurred in a little girl five years old, and after lasting a couple of years, terminated in ankylosis and deformity. Progressive tuberculization, both mesenteric and pulmonary, followed; and the little creaturo, one arm supported on the back of her chair, the other on her knee, unable to lie down for an instant, perished, after a few days' illness, of intercurrent bronchitis. Resolution may ensue, but, in the majority of cases, caries, succeeded sooner or later by suppuration, is set up; abscesses form, and the matter fuses along the loins, sides of the chest, or crural arch, perhaps on both sides at once, sometimes even as far as the thigh. It has also burst into the spine, with instant fatal results. I knew it to find a vent at the crest of the ilium, in a boy. In another, it was in the groin, the patient, a sea-captain, being quite gibbous, and suffering greatly from periodical dyspnœa, without structural pulmonary lesion. Here the disease arose from blows and falls on the spine, incurred during storms at sea. In a third, the outlet was directly backwards, the patient suffering greatly from hectic and exhaustion before death. Caries of the processus dentatus has ended in fracture and dislocation, followed by sudden death. At other times, as Sanson has shewn, dislocation, as consequent on osteitis of the articulation of the atlas with the occiput, of the atlas with the second vertebra, or both together, may displace the head to one side, sometimes rendering respiration and voluntary motion very difficult; at others, if the change of position be slowly effected, without embarrassment in these respects, although medullary compression prove very considerable. Should the theca and spinal marrow participate in the inflammation, there will be paralysis of the rectum and bladder, with involuntary stools and urine; at other times, prickings and convulsive startings, and, as I have known, paraplegia and even epilepsy. Abscess is most unfavourable, few recovering after its occurrence; hence Boyer, so soon as it pointed, evacuated the contents by means of an oblique puncture, as practised by Abernethy under other circumstances. Larrey, however, preferred a red-hot trocar. I have found an eschar on both sides of the spine as recommended by Pott, by means of caustic potash and lime, placing a couple of peas in each of the cavities thus formed, and maintaining them in situ with sticking-plaster, of much service. The eschars should be larger in adults, and more peas introduced. This, the actual cautery, or the irritation produced by tartar-emetic ointment, seems greatly preferable to moxas which I have often seen resorted to with torturing pain to the sufferers, in the Hôtel Dieu, La Charité, and other French hospitals. During treatment, the recumbent posture and suitable regimen are requisite. As for the forcible extension of the spine, when permanent flexure or ankylosis has set in, resorted to by charlatans, it can only subject the patient to fresh risks.

While on the subject of vertebral caries, it is necessary to observe that certain morbid conditions of the spinal canal, have been very unnecessarily confounded with it, and even, improperly subjected to analogous treatment. The doctrine of spinal irritation has received great support, and very extensive application, from Marshall Hall, Griffin, Teale, Tate, Brown, and Darwall: other pathologists, however,

the French among the rest, conceive that it is either entirely gratuitous, or reposes on very insufficient data. The irritation so named, it has been averred, is primary or transmitted. If originating we shall say in the stomach, the diseased impulse by a reflex function, is transmitted to the spinal marrow, thence conveyed to the uterus, mammæ, or elsewhere. In many of these, though difficult as Todd observes, to conceive how it could extend through a bony ring, pressure on particular points, or the application of a hot sponge, is productive of pain. Spinal tenderness is further observable in neuralgia of the breast, mammæ, abdomen, sides, arms, thighs; but I have detected it in other cases where no neuralgic affection subsisted: in fact, nothing is more common, in females especially. That there is a reciprocal influence and connexion between the spinal marrow, its nerves, and the ganglionic system, is undoubted; but, whether to the extent contended for by the above-named writers, remains for further investigation. Acting on these presumptions, however, delicate girls have been percussed, hot sponges passed along the spine, and when any tenderness was detected, leeches, blistered, and subjected to antimonial inunction. Nay, caries has too often been inferred, issues have been inserted, and the recumbent posture as before stated, enforced for years, when the parts were wholly exempt from disease.

Deficient or faulty education with regard to girls, for the disease is hardly ever met with in boys, or the peasantry, sometimes induces spinal curvature generally lateral, in one or more directions. The term scoliosis has been applied to lateral, cuphosis to backward, and lordosis to anterior curvature. As Bouvier remarks, the natural bends of the spine may be increased, done away with, or inverted. Unnatural curvature in the upper part of the spine is very apt to induce a consequential one in the lower; in other respects, it may implicate the whole spine or only a portion, and extend to both sides the mesial line. In cuphosis of long standing, the bodies of the vertebræ are apt to become thinner anteriorly, while the spinous processes are unduly separated. Bouvier esteems lordosis the result of lesions that have destroyed the natural curve; Delpech, however, saw dorsal lordosis in an over-grown youth: I only once witnessed this rare affection, which may be congenital, in a gentleman of delicate stamina. As for scoliosis or lateral curvature, one meets with it in hundreds, not to say thousands of instances, in the back and loins. In the neck, where it is mostly the result of torticollis, it is comparatively rare. Bouvier and Marjolin attended a case with dorso-lumbar curvature and paraplegia, and rheumatic torticollis to that degree, that the back of the head almost touched the right shoulder. It appears that not merely the intervertebral ligaments and cartilages, but the articular apophyses and bodies of the vertebræ, are wasted and rendered thinner on the side of the curvature; their texture, however, an assertion in which I am borne out by Bouvier, Shaw, Cumin, and Barlow, is otherwise unaffected. The capacity of the chest and abdomen is restricted, while the contained viscera are encroached on; protuberances on the sternum, shoulders, and ribs, simulating and sometimes unhappily mistaken for abnormal tumours, ensue. Serres conceives that dorsal deviation to the left, is more dangerous than to the right; but, even here, Bouvier found the heart in several aged women at the Salpetriere, placed in the

hollow. The young person stands too much on one side, the centre of gravity no longer falls evenly between the feet, and though actual pelvic deformity cannot be said to ensue, the superior facet of the sacrum, and plane of the pelvis are no longer strictly parallel with the horizon. The height is considerably diminished: one who would otherwise have been a tall personable girl, was submitted to me with the hollows on both sides the spine stuffed and padded. Cuphosis or arched back is most common in weak infants and aged persons. A habit of stooping, over-study, and rheumatism of the abdominal muscles preventing their extension, appear, among the exciting causes. The aborigines of America, Africa, and Asia, the two last of whom are in the habit of carrying light burthens, water-pots, and the like, on their heads, have the most erect gaits imaginable. The females of our aristocracy are very well in this respect, unless when they take it into their heads to adopt a Grecian bend. Lordosis in which the shoulders are thrown inordinately back, is sometimes developed in pregnant women, those who carry baskets before them, and delicate rickety persons. Scoliosis, so frequent in women that one cannot walk the streets without witnessing it, arises from deficient nutriment, insufficient physical exertion in the open air, and tight lacing. Thus the health languishes, the muscular system, and, consequently, the bones, remain inadequately developed, the spine lapses to one side, or sinks and curves from sheer inability to sustain the superincumbent pressure. Once commenced, the disease goes on in an accelerated ratio. I cannot agree with Jules Guerin, that it is merely owing to a lessened supply of nervous influence. Certain it is, as Barlow remarks, that if men were so laced, so imperfectly exercised, so inadequately clothed, so suffocated, so exposed, their superior bodily vigour would soon have no existence. The pernicious practice of wearing stays, and over-taxing the attention of young girls by excessive study, should be abandoned. Diversified exercise prolonged to incipient fatigue, should be taken once or oftener, daily, in the open air. Every morning the body should be brushed or sponged over with cold, or preferably, tepid water, then rubbed perfectly dry with a warm coarse towel. A light flannel vest in winter at least, should be worn, if not next the surface, at any rate over a cotton chemise. Should the weather be cold, or the subject delicate, these may be changed for similar garments at night. If stays must be resorted to, for humanity's sake, let the period of girlhood first pass by. I have vainly remonstrated against their employment in the case of a child three years old. Mothers assure you they are not tight, forgetting that they coerce every motion, prevent the development of the muscles of the back, as well as restrain stooping and respiration. In the intervals of exercise, girls, delicate girls more especially, should lie on sofas, or sit on low seated chairs where there is a support for the back. These means in ninety-nine cases out of a hundred, would prevent the development of spinal curvature altogether; and supersede the necessity of orthopedic machines, as well as Guerin's operation for the subcutaneous division of the spinal muscles on the side of the curvature, the same as for torticollis or for squinting. Shaw has delineated chairs so arranged that a counterpoise takes off the weight of the neck and chest while the patient is sitting. A wooden couch on which the patient can flex and extend the extremities, with pulleys and weights so attached, that considerable

exercise can be had in the reclining posture, seems to me greatly preferable. I have also tried swinging on a horizontal bar, or on a triangle, the upper sides formed by stout cords attached to a hook in the ceiling, the base an ashen shaft. The advantages hereby derived are perpetuated by making young persons sleep on a hard mattress, with little or no pillow, taking care to lie on the side of the concavity. These measures, perseveringly employed, though infinitely inferior to prevention, prove of unquestionable utility.

The vice of nutrition, consisting in deficient secretion of the phosphate of lime, termed rickets, or rachitis in children, softening of the bones, osteo-malaxis, or mollities ossium in adults, gives rise to curvatures in the spine, as well as in other portions of the bony fabric. Glisson derives rickets from *ραχίς*; Good, however, refers it to the vernacular saxon, *rick*, a heap or hump. The former in the nineteenth chapter of his work, proceeds to explain *cur in Anglia frequentius hic morbus occurrat, quam in aliis regionibus*, an assumption, doubtless, imaginary as the causes, namely, *Angliæ temperies frigida ac humida*, to which he refers it. Rickets, by the Germans, probably after Glisson, termed the English disease, *englische Krankheit*, may subsist from birth, but rarely ensues before the first dentition or afterwards; it may also affect women about puberty, or the period of the first gestation. Out of twenty subjects, Ruzf found that thirteen were attacked before three, four at three, two at five, and one only at eleven years of age. The preponderance of the disease in females, and that at an age when sex might reasonably be supposed to have little influence, is somewhat singular. The disorder is common among cretins, yet the intellect is often precocious. It appears occasionally hereditary; in other respects, the sources, further than as regards inferior or deficient nutriment, are not well known. Cumin thinks scrofula an exciting cause; but Ruzf detected tubercles in the lungs or elsewhere in six subjects only out of twenty. I have, however, witnessed open sutures and crooked limbs in scrofulous subjects; otherwise the bones of the skull and teeth are exempt from change. In this disease the articular extremities, as well as the flat bones, become swollen, the periostium is adherent, while the osseous structure generally, is soft, vascular, and bleeding after a section. According to Meckel and Dr. Davy, healthy bone contains about one half of the phosphate of lime; whereas, in rickets, there is not more than a fourth. Cumin mentions a child of four in whom the forearm bent like soft gristle; at other times, however, in adults more especially, fracture readily ensues, the parts separated displaying no tendency to reunion. The disease is often rapid; those affected, if young, are apt to perish of phthisis, tabes mesenterica, or pneumonia; if more advanced, of apoplexy. The appetite and digestive functions are frequently unassailed. Mollities ossium is merely rickets in the adult; the bones become soft and flexible like wax; and, during the morbid conversion, may be fractured again and again. Some patients survive years, others again the progress of the disorder, or concomitant lesions, consign to a premature grave. Those whom ancient authors speak of as existing without bones, must have laboured under osteo-malaxis. Pregnancy and parturition, in predisposed subjects, are powerfully exciting causes. Extraordinary deformity is often induced, tall, sizeable persons being reduced to the stature of dwarfs. This was

the case with a poor creature only two feet high, delivered by the Cæsarian section at the Maternité in Paris. There are skeletons in French museums which have excited my frequent wonder, the bones bent zig-zag in every conceivable direction. At the period of the second dentition, the limbs, if previously unaffected, rarely become rickety, the spine is then the seat of disease; the pelvis also being imperfectly developed in young girls, may be consecutively deformed. When the disease ensues at puberty or during pregnancy, the pelvis, if previously free, remains intact, however the spine may be distorted. Irregularities of the sternum and costal cartilages are more frequent than what is commonly supposed. A lady applied to me labouring under a hard tumour, which gave her great uneasiness, and which she was rejoiced to learn arose from irregular prominence of the inferior false ribs. About a year after, one of her grown-up daughters required my advice for a tumour between the sternum and right mamma, evidently produced by abnormal development of one of the sterno-costal cartilages. On examining the spine, I found a slight double curvature. The swelling was first observed after a prolonged mercurial course, to which she had been subjected for iritis. Every thing should be done in the early stages of rickets by means of suitable nourishment and general hygienic attentions, so far as may be, to stay the progress of the disease. The bed should be a hair mattress, the apartment light and airy. Dugès attaches some importance to aromatic frictions with flannel smoked over burning incense or juniper berries, or impregnated with diluted brandy, lavender, or Cologne water. The internal exhibition of the phosphate of lime Mr. Cooper has seen tried without the slightest advantage. As the patient grows older, very gentle gymnastic tractions might prove useful. In mollities ossium, which, however, is a rare disease, little can be done. I have seen many instances of what are termed chicken breasts which, at one time, might probably have been benefited by Dupuytren's method of placing the child against the knee or a wall, and pressing moderately, day by day, on the sternum, so as to lessen the antero-posterior diameter.

IX—ARTHRITIS, RHEUMATISM, GOUT.

ARTHRITIS may be acute or chronic; confined to the exterior, or extending to the interior of the joint; common, traumatic, rheumatismal, or podagric. Inflammation may occur in a given articulation from wounds, blows, sprains, and the operation of cold. The exterior of the joint, as Velpeau has shewn, may alone be affected, little pain ensuing except on motion. I have, however, witnessed considerable local pain and tension, with fever, and the formation of a large abscess just over the patella. When duplicatures of the synovial membrane between the tendons and ligaments, as well as the accompanying cellular tissue, are implicated, we have internal arthritis, strictly so termed. The synovial membrane is a serous one; but as neither vessels nor nerves are demonstrable, the inference is, that its disorders generally commence in the accompanying cellular tissue. A specimen of exquisite recent internal arthritis of the knee, the affected parts being red as crimson, was shown to me

on one occasion by M. Breschet. It is not generally known, though laid down by Velpeau, preceded by Gordon, Larrey, and Cruveilhier, that the synovial membrane is not reflected over the articular facets or diarthrodial cartilages; hence these bodies, it would appear, like the hair, nails, or enamel of the teeth, are incapable of taking on inflammatory action. The erosions, wearing, and loss of substance, therefore, described by Brodie, are not the immediate result of articular inflammation. Once, indeed, the interior of the joint, whether from the opening of abscesses or otherwise, is exposed, the cartilages are generally quickly destroyed, while the local inflammation and consequent sufferings of the patient, rapidly increase. The risk attendant on accidental wounds, and incisions otherwise than on Guérin's principles, for the extraction of moveable cartilages, is the supervention of inflammation and suppuration. I once witnessed fatal inflammation in the ankle, following exposure to cold. Articular inflammation, already adverted to, has been observed in the course of gonorrhœa, and it has even been alleged, after sounding the urethra. I am assured on the authority of a friend, that a patient was thus affected three several times during attacks of gonorrhœa. A case is related by Yvan in the *Bibliothèque Médicale* for 1806, of a captain, who, after the sudden suppression of urethral discharge, experienced swelling and acute pains in the right knee and ankle, with ophthalmia in both eyes. Antiphlogistics and other remedial measures failed, till the discharge was re-established by repeated introduction of recent gonorrhœal matter. Lagneau and Gibert regard cases of this kind, which are further adverted to by Swediaur, as metastatic; Baude, however, in the *Bulletins de l'Athénée de Médecine*, denies this, and accounts for the suppression, on the ground of revulsion occasioned by the accidental occurrence of articular rheumatism; and adduces instances, not merely of rheumatism supervening on gonorrhœa, but of gonorrhœa supervening on rheumatism. Considering the frequency of both diseases, we should not without sufficient evidence, assent to the sequence, as matter of cause or effect, in every case, of one on the other. Arthritis, sometimes terminating in white swelling, has been known to take place after parturition; few, however, as Samuel Cooper observes, who have escaped struma till five and twenty, incur this affection. I have already adverted to the frequency of purulent articular deposits after phlebitis: such, Velpeau remarks, are common after operations on the hands and feet. The remedies in arthritis, whether traumatic or accidental, are local and general depletion, gentle aperients, and topical fomentations. Some puncture the superficial veins, others apply multitudes of leeches, followed by smaller numbers in succession, with stupes, which alike promote the discharge of blood and allay pain. At other times, however, cold evaporating lotions have been found to answer best. Subsequently blisters, warm liniments, and moderate, but not premature use of the part, will prove advisable.

Rheumatism affects the joints; hence rheumatic arthritis. It is a disease, however, not confined to the joints, but one which, with more or less pain, redness, and tension, affects not merely the superficial muscles, but the heart, diaphragm, intercostals, pectoral, and abdominal muscles, neck, back, loins, extremities, and, it has been alleged, the different fibrous aponeuroses. The joints, muscles, and integu-

ments may be simultaneously affected, the large joints more frequently than the small; but the fingers and toes even, as I have had occasion to witness, are not exempt. I never observed actual abscess, whether in joint or muscle; but have frequently met with serous or synovial effusion in the former. In fact, inflammation in the joint is commonly superficial. Rheumatismal inflammation is erratic in character, flitting from joint to joint, and from muscle to muscle, often in the most capricious manner, so that a number of these shall be successively or simultaneously affected. This metastatic character is more decidedly evinced by acute than chronic rheumatism, but it occurs in both. There are points to which it seems to have a predilection, fixing on them every time, or, if driven away, returning with fresh pertinacity. Gout, indeed, though to a much less extent, has a similar shifting character; it rarely, however, affects any muscular structure except the heart, a ground of distinction which does not appear to have been much, if at all, insisted on. Scudamore and some others are of opinion, that in what is termed muscular rheumatism the insertions of the tendons and fibrous aponeuroses are the parts really affected. The ready transference of rheumatismal inflammation to the endocardium and pericardium has been previously insisted on; yet here, apparently, the serous, as regards the pericardium, is oftener implicated than the fibrous coat. The fever attendant on acute rheumatism, according to Barlow and Sydenham, precedes local inflammation; in my opinion, it is a sequence, or, at any rate, concomitance. The heat of surface is often excessive, with flushed countenance, thirst, rapid pulse, sedimentary, high-coloured urine, and a white tongue. Local pain and swelling mark the existence of inflammation in the knee, elbow, wrist, shoulder, hip, or intervening muscles. Effusion, with evident fluctuation, so far as my own experience is concerned, is more frequent in the knee or elbow than other joints. In a young lady whom I attended, all the leading joints, further, the wrists, fingers, ankles, toes, skin, and soles of the feet, were affected; likewise the occipito-frontalis, diaphragm, and intercostals, as marked by excessive dyspnoea, with local pain and itching. While the parts are red, and more or less swollen, they are usually excessively tender to the touch, so that the patient shrinks from the slightest contact. What from the influence of remedies and mobility of the disorder, we find at almost every visit a fresh succession of parts affected. Now it is here, now there, so that the unhappy patient experiences neither peace nor rest; commonly spreading to analogous tissues, of which the fibrous structures of the eye, joints, and heart are usually, though without strict correctness, cited in illustration. Pleuritis, and also peritonitis, are occasionally, though it must be confessed rarely, results of metastatic rheumatism. It is worthy of remark, that the fever and inflammation often come on in paroxysms, so that almost every joint in the human body may be affected in succession. During the continuance of the disorder, many are covered with a profuse perspiration, the incidence of which seems part and parcel of the complaint. The duration of acute rheumatism, otherwise rheumatic fever, unless cut short by appropriate treatment, may be from one to three months. Gelatinous effusion and swelled bursæ are among the sequelæ. Frequently, in place of abating and gradually disappearing, the disorder, unattended with fever, continues in a mitigated form, receiving the denomination of chronic

rheumatism. Otherwise, it may be subacute or chronic from the first. In the chronic disease the same order of parts is attacked; there is the same metastatic transference, only less rapid; redness and swelling, however, are anything but inevitable. In some cases, there is excessive stiffness, occasionally amounting to permanent flexion and immobility of the joints, of which the ligaments are said to be thickened, the motor muscles flaccid and wasted. The pains are often almost constant, even at night; and patients experience months, if not years, of suffering. On one occasion, Mr. Stanley discovered a white deposit of carbonate of lime within the capsules, and on the articular cartilages; and Begin goes so far as to speak of erosion of these, and even caries of the heads of the bones forming the joints.

Chronic rheumatism, by some termed hemicrania, of the muscular, and it is reputed fibrous aponeurosis of the scalp, is a common, and from the difficulty of applying local remedies, often a very distressing affection. As for rheumatism of the dura mater as a source of hemicrania, I am sceptical as to its occurrence. Wry-neck, or torticollis, is one of the results of rheumatic stiffness and contraction of the muscles of the neck; permanent contraction of the platysma myodes, often of the sterno-mastoideus, may ensue from other causes. I have witnessed some striking instances of torticollis from burns: in one of these the chin was tied down to one side the breast, while the right arm was flexed on itself. The relief of these affections by subcutaneous division of the affected muscles, as conducted by Guerin, also division of the puckered integuments, is well understood by surgeons. Rheumatism may ensue pretty high in the back, at other times it is low down, and then bears the designation of lumbago. It may implicate one, more commonly both loins, and though by some termed a nervous affection, rarely extending to the articulations, is, in my opinion, purely rheumatismal. Independent of cold and moisture, the ordinary sources of this and other rheumatismal affections, lumbago has been induced by sudden muscular effort, or even simple stooping. On such occasions, one of the small muscular or tendinous fibres connected with the spine, is probably lacerated; Dupuytren, indeed, was wont to dwell on the liability of the parts in such cases to contract rheumatism. The incidence of lumbago, however, as I have had occasion to witness, is sometimes so rapid, as almost to preclude the idea of rheumatism. It is distinguished from nephritis by absence of retraction of the testicle, and of pain running down the thigh, also of bloody urine; pain usually extends to both sides, while the patient is unable to stand erect, or move about. Lumbar or psoas abscess, psoitis, is not a common affection; Roche and others did not meet with it in the course of fifteen years' practice. Gibson and Physick advert to its rare occurrence in America; and Cooper thinks it oftener chronic than acute. I have treated three cases; two of them acute, and occurring, one in a boy, the other in a young woman, both children of gate-keepers, and occasionally exposed to wet and cold. There were severe deep-seated pain, inability to stand on, or to rotate the affected thigh, which was rather flexed on the joint, hot skin and quick pulse. One of these ended in resolution; in the other, that of the girl, suppuration ensued; and, after great suffering and exhaustion, the contents of the abscess escaped through the loins, ending in perfect recovery. In chronic cases, the abscess sometimes

attains enormous dimensions. Cooper mentions an instance in Christ's Hospital, in which the tumour extended from the ilium and sacrum to the ribs, and, from the pulsation, was esteemed aneurismal, till Ramsden ventured on puncture, when pus was largely evacuated. The chronic case to which I adverted had been esteemed neuralgic; but, as the patient could not stand on the leg of the affected side, or rotate the limb, not to mention other commemorative symptoms, I diagnosticated psoas abscess. Death, preceded by hectic, purulent stools, coagulable urine, and anasarca, ensued; when, on examination, a cavity about the size of a goose egg, with ragged walls, communicating with the rectum, was discovered in the soft and wasted psoas muscle of the left side, while the adjacent surface of the ilium was rough and denuded. I have also met with other cases, some of them with fistulous outlets, in which the diagnosis was obscure. In one which I recently witnessed, and the nature of which is sufficiently obvious, there are two fistulous openings, one on the crest of the ilium, from which puriform and feculent matter escapes, another in the upper part of the thigh, bordering on the perineum. Here there must be perforation of the intestine, the rectum or colon, opening into the fistulous canal. Dupuytren and others have called attention to inflammation and occasional abscess in the right iliac fossa, according to Begin, following external injuries and ulceration in the cœcum, marked by a white colourless swelling, heat, and deep-seated pain in the affected region, sometimes confounded with psoas abscess. In other respects, the latter, whether as cause or consequence, is alleged as an accompaniment of spinal osteitis. When caries is primitive, Brodie alleges that we are apt to have paralysis of the lower extremities, which is not the case when caries results from the abscess. The treatment of psoitis involves venesection, with repeated leeching, blisters, moderate aperients, low diet, rest, and the internal exhibition of the tartrate of antimony. Crowther appears to have procured the dispersion of psoas abscess by means of blisters kept open with savine dressings. Surgeons are generally averse to evacuating acute abscesses, the contents of which find their way readily enough; too often, however, the nature of the case is overlooked till cleared up by the spontaneous discharge of matter.

Sciatica, in one sense a neuralgic affection, is, in my mind, in most instances, neither more nor less than rheumatism of the sciatic nerve. In effect, when we consider the great size and exposed situation of the latter, there seems no reason why it should not be subject to rheumatism. The pain usually confined to the point where the nerve issues at the sciatic notch, may remount to its origin, or descend, as I have more than once witnessed, to the knee, and even the leg and foot. Here it may be so much more acute as to induce the belief of a local affection therein, and even lead, as I have known, to the imposition of blisters. These remedies, however, when purposely applied to the distal extremity of suffering nerves, have occasionally proved useful. Once induced, it is very difficult of removal; and even when mitigated, returns, the exciting causes, cold and moisture, being reapplied. In some cases the muscular structure of the limb wastes; and I have known this to ensue to a considerable extent. I treated a very obstinate attack, which had been induced by sitting, while partially uncovered, during warm weather before an open window. Individuals,

however, are often wholly unaware of the exciting cause. Mr. Carmichael was inclined in his own case to connect it with derangement of the digestive organs. It is entirely confined to adults. Women, perhaps owing to their warm covering, seem more exempt than men; but some of the worst and most inveterate cases of sciatica I ever met with, extending to both sides, and entailing intolerable suffering, occurred in the sex. Neuralgia of portions of the sciatic nerve sometimes ensues after childbearing; and we must not forget, that it is occasionally symptomatic of uterine disease. Opportunities for dissection in sciatica are infrequent, but osseous incrustation about the hip-joint, in cases referred to sciatica, has been met with.

Considerable diversity of opinion subsists as regards the treatment of acute rheumatism. From the known insufficiency, beyond a certain point, of sanguineous depletions, some would infer their entire inutility. Bouillaud, however, thinks that early and repeated detractions, not only remove the disease with promptitude, but lessen the severity, if they do not wholly avert those serious metastatic transferences to the heart, so apt, he alleges, to ensue during the common routine. He admits, however, the coincidence—*coincidence à peu près constante*, of endocarditis, pericarditis, or endo-pericarditis, in acute articular rheumatism. Sydenham, though not wholly satisfied with the practice, employed repeated venesection; Begin, who considers bloodletting the most efficacious of all remedies, cites numerous cures; and affirms, that if some contest its advantages, it is because they have not pushed it far enough, or employed it with sufficient constancy. The fact is, the febrile reaction, as well as the local disorder, is not always to be subdued by bloodletting; and we might, I feel persuaded, bleed a patient till he expired, and find the blood cupped and buffed to the last. The only fatal instance of acute rheumatism I ever met with, was one which I saw in consultation in the country, and in which one hundred and forty ounces of blood had, at different times, been previously abstracted. The case, however, was most obstinate; the patient in some respects peculiarly constituted, while melæna and hematemesis ensued before death. It is almost needless to observe, that the earlier we see the patient the better; and that relapses and second attacks are more difficult to subdue than primary ones. The treatment, diversified by exceptions, which I follow, when the subject is sufficiently robust and early seen, is to take away from ten to twenty ounces of blood from the arm, and to follow this up by a smart purge, composed of sulphate of magnesia, infusion and tincture of senna, with a proportion of tartrate of antimony; otherwise, infusion of senna, neutral salts, the tincture and powder of colchicum. In a very aggravated case, in a lady, when I had tried opium with utter want of success, I ordered an eight-ounce mixture, containing two ounces of the sulphate of magnesia, a scruple of powdered colchicum, half an ounce of the tincture of the same, the remainder, infusion of senna, a wine-glassful every hour, till the bowels were well cleared out, and with such prompt and marked relief, that the transition from acute suffering to comparative ease and serenity, seemed almost magical. In other instances, I have employed half drachm doses of the wine or tincture of the seeds, the efficacy of which is vested in the veratria lodged in the testa or husk, combined with a couple drachms or so of one of the neutral salts, or half a drachm of the

compound powder of jalap in peppermint water. This not merely sufficed to abate or remove local pain, but to dissipate effusion, when subsisting, in the knee and other joints. Some say that the efficacy of colchicum depends on its purgative powers, and certainly these are essential.

Bricheteau in his *Clinique*, brings forward some striking instances as regards the efficacy of emetic tartar in the Necker hospital. He preceded its exhibition by bleeding; giving every hour, a large table-spoonful of a solution, containing ten grains in six ounces of infusion of orange flowers, with an ounce of syrup of poppies, and if tolerance did not ensue, a few drops of the tincture of opium. He admits the occasional inefficacy of this remedy, but alleges its innocuity. I question the propriety of leeches as a local application, and much prefer rubbing with the compound camphor liniment, wrapping the part in flannel; the patient, at the same time, lying between new fleecy blankets. Barlow indeed, altogether repudiates their application, which he has seen followed by sloughing, ulceration, and thickening of the ligaments. If not early attended to, the disorder often proves obstinate, not to say inveterate, baffling the efforts of the practitioner, returning again and again on the slightest exposure, perhaps, after no exposure at all, breaking down the patient's strength, annihilating his comfort, and destroying his nightly rest. Too frequently, indeed, carelessness or inattention renders these wandering pains inveterate, and causes them to lapse into chronicity. The mercurial treatment originated by Hamilton, has its advocates in acute rheumatism, and Barlow lends his sanction to the practice. He does not propose the mineral in every case; but if bleeding, abstinence, and salines with antimony and colchicum, fail within four and twenty hours to bring relief, he would then proceed slowly to affect the gums, giving, say five grains of calomel, one of opium, and one of tartarized antimony every six hours. In milder cases, however, he was content with half this amount, guarding against undue action of the mercury, and attending to the bowels. Even before its influence on the gums is perceivable, the curative effects are experienced. Unless in the event of rapid salivation, however, it is better not wholly to discontinue the calomel so long as fever and local inflammation persist. Should there be headache with a hot dry skin, dark, parched, in place of a moist tongue, Barlow, would omit the opium. These in my opinion, though some hold to the contrary, here as well as under other circumstances, contraindicate this substance. At the onset of the disorder, I confess I have always found it to heighten the fever, entail headache, lock up the bowels, induce sleepless nights, and render the tongue hard and dry. The acute stage, however, once over—bleeding, purging, and colchicum having preceded—when the disease in fine persisted, but neither bore nor required further active measures, I have known opium, with due limitations, to procure sleep and relieve pain. In one or two instances when purging continued after the exhibition of colchicum, I found opium most serviceable. Dr. Corrigan avers that it lessens the duration of the disease, husband the patient's strength, diminishes suffering, and averts metastasis to internal organs. This practitioner describes several cases in some of which a grain of opium was given every hour, in others every second hour with the guaiacum mixture, an occasional purge containing col-

chicum, ealomet, or eastor oil, with quinine towards the close, till relief was obtained. Cardiac complication though occasionally imminent, ensued in none of his eight cases; while the average duration was less than in those described by Bouillaud. Opium, however, is not the only narcotic which has been employed in large doses; Delarroeque of the hospital Necker, I have been informed, removed acute rheumatism in from four to ten days, by copious doses of the extract of belladonna or stramonium. Increase of fever, and, even, aphonia, subsultus, and delirium requiring the *camisole*, were among the temporary results of a mode of treatment which however successful, few would think it justifiable to imitate. I have tried the mixture, or the ammoniated tincture of guaiacum, with occasional advantage. Gregory was fond of Dover's powder, the pulse being reduced by bleeding below a hundred, in ten grain doses every two or three hours with copious diluents till the patient sweated, keeping up the treatment forty-eight hours. Independently of the risk of contracting cold, and noted inutility of spontaneous sweating, Scudamore asserts that this procedure augments pain and inflammation, induces debility, and prolongs the disease. Haygarth, Fothergill, and Fordyce preferred bark to every thing else. The last affirms that he rarely met those examples of metastasis not uncommon after copious bleeding. Haygarth, however, purged and vomited with antimony before he prescribed bark, beginning with ten grains and advancing to one or two scruples. For my part I would order bark in no case, till bleeding, when proper, and colchicum or other aperients, had been resorted to. To crude bark I have given no fair trial, but quinine when solely depended on, though freely administered, I have found wanting. Haygarth, however, expressly states that the pains, swellings, sweats, and other symptoms of inflammatory fever speedily abated; while those who had been treated by bleeding, leeches, and sudorifies, laboured for years under chronic pains in the affected joints and muscles. Scudamore, such is the occasionally conflicting nature of medical evidence, probably owing to variations in the mode of exhibiting remedies, and differences in the manner of the attack and constitutions of those affected, gave bark repeatedly, due evacuations being premised, and remembers but one case in which it proved successful. He testifies to its utility, however, when the patient is convalescent, the fur disappearing off the the tongue, the urine of light specific gravity, the bowels natural, the skin relaxed, and simple debility prevailing. Barlow states, active treatment premised, that he employed bark, half a draehm with ten grains of nitre twice or thrice a day, with such benefit as to have seen it within four and twenty hours, remove lingering fever, dry skin, white tongue, and acute pains in the joints. Iodine has enjoyed a popular but ill-bestowed celebrity. In other respects, the temperature should be duly regulated, the diet light and sparing. Scudamore has seen all the symptoms reproduced by a premature meal of chicken. As to diluents, Sydenham recommends whey, Boerhaave milk. Debilitated subjects, however, may require wine-whey, spiced panada, gruel or other matters, to keep up their strength towards the close of the disorder. Indeed, patients, what from the obstinacy of the complaint, oft-recurring attacks, over-prolonged exhibition of colchicum or other remedies productive of gastric or enteric irritability, are so reduced that we are glad for a while, to intermit every

kind of remedial interference and allow the sufferer, the malady notwithstanding, a little time to recruit. These rules, with due allowances, extend to all ages, and both sexes. Elliotson has witnessed the disease with the consequent pericardiac and valvular affections, in very young children. Indeed many of the worst and most fatal cases of morbus cordis, doubtless from this cause, that I have met with, were among such. Once when called in to another case, I saw a boy of eight who had actually laboured under intercostal, diaphragmatic, and articular rheumatism, neglected for weeks, and from which I had the satisfaction of freeing him. In another, the child experienced fever from rheumatism in the neck, a not very unfrequent situation.

The treatment of chronic rheumatism unhappily, is distressingly uncertain, the more so, as any alleviation is apt to be neutralized by the patient's incaution, or the inevitable exposure generated by the daily acts of life. Here flannel is not only one of our best prophylactics, but while alone it ensures great relief, no mode of treatment, reasonably speaking, is efficacious without it. Hence, among other reasons, the difficulty of averting and allaying the disorder among the poor, who are but scantily supplied with this important article. The bowels must be duly attended to; senna and the neutral salts, with a little extract of hyoseiarnus, are useful as aperients. I further commonly employ blue pill, compound extract of colocynth or colocynth pill, with a small portion of the tartrate of antimony. I have combined the extract of colchicum, but its virtues, possibly owing to the nature or manner of the preparation, appeared null. Elliotson finds mercury useful as a sialogogue in the chronic, as in the acute disease; and whether the parts be hot or not, he affirms that obstinate cases give way to it, which resist everything else. This writer also praises arsenic, which, as well as guaiacum, in some instances proves serviceable. In my opinion, the great thing in this worrying disease, is to keep the surface warm, with suitable exercise on horse or foot, plenty of flannel, attention to the bowels and general health, and hunting the malady, as it were, by means of local irritation, from place to place, till it disappear. Moderate exposure is useful; but partial currents of air, wet, and cold, whether by night or by day, prove hurtful. In several cases of rheumatical hemicrania, in both sexes, the hair being cut close, I have found the tepid, gradually merging into the cold shower-bath, on the naked head, of vast utility; beyond comparison, more so than flannel coifs, and heated rooms, which render the patient a moving weather-glass, and a martyr to every breath of air. Preisnitz of Gräfenberg, indeed, removes chronic rheumatism, both muscular and articular, by means of the reaction following cold baths, as well as the application of cold water in various other forms. Baths of warm water, heated air, or sulphur-fume baths, are often productive of much relief; but may also wholly fail. The North-American Indians stove themselves in their huts; earth, sand, and mud-baths, were formerly employed, and might still be resorted to with advantage. Hot brewery or distillery grains might answer in some cases. A cheap, available bath consists of a narrow porringer of burning spirits, under a cane chair on which the patient sits, for fifteen or twenty minutes, enveloped in blankets. He may then stand in some convenient vessel, and have a bucket of soap suds, at the temperature of a hundred, poured over his shoulders; the skin being afterwards well rubbed

with a coarse sheet, followed every time by copious inunction, of which I entertain a favourable opinion, with some agreeable ointment, as marrow or mutton suet, dissolved in olive oil, over the whole surface. I have to guard the practitioner against a result which I have occasionally met with, and which has been signalized by others—I mean metastatic transference of a neuralgic or subinflammatory character to the heart. In one instance, the bath being heated above a hundred, the heart's action was deranged, inducing discomfort and broken rest for months. In the case of an elderly lady, lipothymia, followed by prolonged fluttering and pallid countenance, ensued. Of active exercise, clothed in flannel, by which the whole frame is invigorated, and a beneficial determination created to the surface, I have formed a high estimate. I shall not readily forget the case of a gentleman, who had passed years between the tropics, with torturing rheumatism, which repeated vapour baths failed to relieve. I made him put on two suits of flannel, with chamois over all, and walk daily till he sweated. Almost immediate alleviation, with complete eventual recovery, was the result. Dr. Marcet freed himself from sciatica by excessive exercise, warmly clothed in flannel. Abundance of this material, rolled or plain, to the amount of four or five plies even, over the joint, is expedient in this troublesome form of rheumatism. It is also well to blister once or oftener over the hollow of the hip, and to purge the patient with turpentine and castor oil, beginning with half an ounce of each to an adult. I have, in this way, in several instances, removed sciatica in a short time, in subjects some of whom had not been able to leave their beds for weeks. Continental writers recommend heated douches over the affected parts. Warmer clothing, with respect to the inferior extremities, would go far to limit the great frequency of sciatica among the working classes. Similar measures, to which some would join cupping, colchicum, and opium, equally suffice in lumbago. I have found flannel cloths wrung out of boiling water, or simply heated and sprinkled with turpentine, very useful. Clutterbuck succeeded in alleviating lumbago, by means of half a grain of elaterium, followed by a grain or two of opium. Pitch plasters are popular, and not wholly to be despised remedies. Acupuncture, borrowed from the Japanese, is available in every form of chronic rheumatism. The needles, before being used, in order to destroy their temper, must be heated on a fire-shovel to redness, then cleansed, straightened, and pointed on a common hone. It is well to pass a piece of thread through the eye, which may be enveloped in melted sealing-wax, so as to form a ball about the size of a small pea. A couple of dozen, more or less, may be successively introduced, one by one, by gently pressing the head while we rotate the shank, into the affected part. They are harder and more painful to take out than to put in, owing apparently to partial oxidization, doubtless induced by galvanic influence. The suffering, contrary to what might be supposed, is not considerable; and may be lessened by rendering the skin tense with the finger and thumb of the left hand, while we introduce the needle with the right. I have often employed acupuncture, both in private and hospital practice, with the effect of driving the pains from place to place, and finally expelling them altogether. Elliotson usually allowed the needles to remain one or two hours, and justly observes that their efficacy is thus enhanced. He generally found them

requisite oftener than once; and mentions lumbago, which yielded after nine introductions. I tried them repeatedly in an obstinate case of sciatica, which resisted this and every other remedy till death relieved the unhappy patient from otherwise cureless sufferings. Dance preferred many needles to few; he mentions two instances in which sciatica was thereby removed, and in which a sensation, as if something escaped by the punctures, was experienced. They should only be introduced into muscular parts, never in the vicinity of joints, the abdominal or thoracic viscera. Beclard once saw delirium and abscess induced by acupuncture in the leg; in the numerous patients, however, operated on by Cloquet in St. Louis, as well as by others in La Pitié and the Hôtel Dieu, unpleasant results never once occurred. Electro-puncture, the electric stream being conducted from needle to needle, placed at suitable intervals, as also simple galvanism and electricity, displays occasional, but very uncertain efficacy. I tried a heated iron, brown paper intervening, over the parts. It allayed the pain, but induced a sickening sensation. I much prefer champooing or good hard thumping duly persevered in, which I can recommend as alike innocuous and efficacious.

Podagric, being much less frequent than gouty arthritis, is proportionably less important. Rheumatism ensues through life, infancy being the only period exempt; it takes place among all classes, and is much more diffused as to its seat; whereas, gout is confined to the rich, is mostly seen among men, and rarely or never occurs before puberty. I have met with innumerable cases of rheumatism, but do not think, speaking of first attacks, that I have witnessed gout a score of times in my life. Gout, though less so than formerly, is probably more frequent in England, than in all the rest of the world put together; partly, perhaps, from the more replete habits of the people, partly from the heady wines preferred by the inhabitants. I have, however, met with instances among spirit drinkers, who lived well otherwise; and have had occasion once or twice to see the disease abroad. The word gout is from the French *goutte*; the latter, again, from *gutta*, based on the old humoral pathology; podagra is from *πους* and *αγχα*. In other respects, gout is acute or chronic, attacks varying with the habits and predisposition of the individual. The disorder is characterized by more or less malaise, sick stomach, and morbid plethora, followed by local inflammation, commonly in the first joint of the great toe. Occasionally, however, it invades both toes simultaneously or in succession; also the large joints, as the ankle, knee, elbow, and shoulder. It may implicate the heart, producing what some have termed, masked or retrocedent gout; and induces symptoms, sometimes fatal, resembling those of angina pectoris. In one hundred and seven first cases of gout, Scudamore found the great toe of one foot affected in seventy, the great toe of each foot in eight; the others were divided among the toe, instep, ankle, knee, wrist, elbow, shoulder, hand, thumb, and back. The feet, knees, hands, elbows, ligaments, bursæ, and sheaths of the tendons, according to this writer, were indiscriminately affected. Some experience gout but once or twice; others have it repeatedly through life. The severer the attacks, the shorter are they apt to prove; but as the disposition increases with time, so they grow more frequent, as well as longer, while the parts affected become more numerous. Gout is periodical in its

occurrence; spring and autumn being the usual times of election. It resembles asthma in making its appearance at night. One of my patients, when first attacked, could not imagine the nature of the acute pain with which he was then seized. Scudamore mentions cases that were mistaken by the affected parties, for strains, and treated accordingly. Gregory used to give an excellent description of this disease, to which he had been liable in his own person; that by Sydenham is well known. It comes on, says this famous writer, towards the close of January or beginning of February, preceded by indigestion, flatulence, and perhaps a sharp appetite the day before the attack. The patient goes to bed and sleeps quietly till about two in the morning, when he awakens with a lacerating, gnawing pain in the great toe, sometimes the heel, calf, or ankle, so exquisite that he cannot bear the weight of the clothes, or the motion of a person walking in the room. This continues with great pain and restlessness, till about the same time on the following morning, when, relief being obtained, copious perspiration, followed by sleep, ensues. During the first fourteen days, the urine is high-coloured, and lets fall a red gravelly sediment. When the fit goes off, the skin between the toes itches and peels off; while the appetite and strength become even better perhaps than before. Sydenham comments on the fact of the hands, wrists, knees, and elbows, being affected in after attacks, as the feet were at first; and how, in some cases, the fingers were rendered crooked and motionless, with concretions which could be picked out with a needle, not unlike pieces of chalk or crab's eyes. I have even heard of some, who, when the skin became thin, could draw lines on a table. Tophi, or chalk-stones, according to Tennant, Wollaston, Fourcroy, and Vauquelin, are composed of the urate of soda, with a small portion of the urate and phosphate of lime. In one instance, Barruel found the phosphate of lime to preponderate. Preparations shewing this morbid deposit lodged in the joints, as well as the manner in which it ulcerates, or eats its way out, may be seen in the Hunterian and other museums.

Occasionally, gout, in place of commencing in the extremities, puts on the aspect of affections of the head, heart, or stomach; at least affections which we ascribe to gout, implicate these organs in podagric persons. It may thus, as has been already shewn, simulate angina pectoris. Sometimes they do not ensue till the complaint has appeared in, or been driven from one of the extremities. Gout in the stomach, head, or heart, popularly so named, may prove fatal; at other times, the attack subsides, with or without metastatic transference to the feet. I have witnessed sudden, acute, lacerating pain in a gouty person, apparently in the stomach; and which was subdued with difficulty by means of opiates, cordials, topical warm applications, and sinapisms to the extremities. In another, sudden coma and insensibility seized a gentleman whom I had treated three several times for gout. There was neither the stertor, flushed features, hard, full pulse of apoplexy, nor any further indication of paralytic seizure. He became tolerably conscious within four and twenty hours, and recovered in about a week. In other respects, attacks of podagra, unless lessened by temperance, exercise, and sobriety, are apt to become inveterate; the disease grows more frequent, the different functions, directly or indirectly, are vitiated; and the patient, unless cut off by sudden metastasis to some vital organ, is worn out by premature decay.

Gout is a disease peculiar to the rich and opulent; and rarely met with, except in men from thirty-five upwards. Predisposed persons, however, females not excepted, are liable at an earlier period. Corpulent, plethoric women, after cessation of the menses, are not unfrequently seized. I was consulted by an English lady of about fifty, of a full, indolent habit, subject to alternate gout and gravel. Cooper mentions a lady who laboured under deposits of the urate of soda, in all her joints, and which, in consequence, were rendered nearly useless. Gout at one time was hardly distinguished from rheumatism; and I believe I have met one or two instances of the hybrid disorder termed rheumatic gout. That the disease, hereditary predisposition apart, is occasioned by eating and drinking to excess, is clear as day. Every case which I had occasion to witness, occurred in replete plethoric individuals, or those who were so in the first instance; gout in a poor, ill-fed person is an unheard of anomaly. Not a case, I feel assured, subsists among six millions of the Irish working classes; and not very many among those in easy circumstances. Excess in meat and wine will induce the disease more readily than either alone; but the complaint is rare in countries where the grape is grown. It is indeed almost exclusively referable to excess of azotized food beyond the bodily requirements and expenditure of the individual. The organs of locomotion seem to be the chief consumers of nitrogen; but the demand is immensely increased by copious exercise. When, however, people become indolent, while they continue to eat and drink as before, and when the skin and kidneys no longer constitute a sufficient outlet, the excess of azote, or of urea in the blood, by some unknown process, tends to induce arthritic inflammation, and, in the long run, deposits of the urate of soda. In some instances, indeed, gout and stone are united in the same individual. The modern discovery of the analogous composition of uric acid calculi, and chalk-stones, with the very similar habits of gouty individuals, and those who labour under red gravel or calculus, settles conclusively the pathology of this interesting question.

Exercise and temperance, as they are the best preventatives, constitute the most rational basis of cure. They are remedies, however, to which the subjects of gout, unless frightened by impending danger, rarely care to resort. I have heard a gouty patient assert, that he would rather incur the disease than forswear his accustomed luxuries; and others, though they may not openly make the avowal, nevertheless tacitly abide by it. The utility of moderation, as respects animal food, exercise, and temperance, or preferably, total abstinence with regard to intoxicating liquors, is undoubted. Dr. Gregory, by this course, shook off the disease, under which, owing to hereditary tendency, he had early laboured. I have obtained precisely the same advantages from colchicum in gout as in acute rheumatism. I prefer, with Spillan and Barlow, the tincture of the seeds. We may exhibit half a drachm of this or of the vinegar, with six grains of the powder, and a couple drachms or so of the sulphate of magnesia in some aromatic vehicle, repeating the same in four or six hours, till free purging, occasionally vomiting, is induced. Prompt relief generally follows. I have tried the tartrate of antimony, and some saline aperient, so as to form an emeto-cathartic mixture, with considerable advantage. When the disease becomes inveterate, and the constitution deteriorated, it is

agreed by practitioners, that colchicum is less efficient, and that it is to be sparingly employed, if not wholly discontinued. In atonic gout, we may find it necessary to abandon a debilitating regimen; and, in the event of prostration, to administer cordials, as capsicum, brandy, the carbonate or the aromatic spirit of ammonia. If aperients be required, they should be of a warm stimulating character, as some of the purgative tinctures; or capsicum united with scammony, jalap, blue pill, or compound colocynth pill. These, with sinapisms to the extremities, are more especially requisite in retrocedent gout. In the chronic disease, opium is often called for, and will be found to allay pain, and even lessen the duration of the paroxysm. Suitable nourishment, wine, sherry for example, and other cordials, will here be required to recruit the frame in the intervals of attacks. In other respects, it is rarely necessary to bleed in gout; nor would I even advise leeches to the affected part. Good found great relief in his own case from dipping the foot into cold water; but it is a risky procedure, and one to which prudent practitioners will rarely resort. Jolly and Lombard have proposed ice-water to the head, as a species of revulsive in burns and neuralgic pains; and Roche, with whom I would not side, speaks of it in gout. Dr. Barlow has laid down some sound principles with regard to maintaining warmth and promoting excrementitious discharges of the skin and bowels. The observance of these, with the better habits gradually becoming current in society, will probably, in time, render this aristocratic malady a mere pathological curiosity.

X—OPHTHALMIA.

I PREFER the definition of Demours, which characterizes ophthalmia as inflammation of one or more membranes of the eye, ordinarily the conjunctiva—*inflammation d'une ou de plusieurs des membranes dont l'œil est composé, et, le plus ordinairement, de la conjunctive*. I also agree with Scarpa in dividing the disease into two species, the acute and chronic—*l'una acuta, l'altra cronica*. Confusion and mischief have arisen from not sufficiently discriminating between the different textures liable to inflammation; as well as from ascribing inflammation to some, as the sclerotica, which rarely or never evince it. Sometimes, inflammation has been supposed to implicate the conjunctiva alone, when, in reality, the cornea, iris, and choroid coat were also affected. Jüngken, in his *Lehre von den Augenkrankheiten*, divides inflammations of the eye into conjunctivitis, sclerotitis, keratitis, iritis, capsulitis, hyalitis, chorioideitis, retinitis, and ophthalmitis; he also distributes sympathetic and symptomatic, or, as he terms them, *dyscrasischen und cachectischen Augenentzündungen*, into not less than two and forty species, of which I may be spared the enumeration. Mackenzie speaks of puromucous, catarrhal, gonorrhœal, serofulous, erysipelatous, variolous, morbillous, scarlatinous, rheumatic, catarrho-rheumatic ophthalmia, and the ophthalmia of the new-born; also, syphilitic, pseudo-syphilitic, and arthritic iritis, serofulous corneitis, chorioideitis, retinitis, aquo-capsulitis, inflammation of the crystalline lens and capsule, hyaloditis, and some others. There are superfluous divisions, however,

founded on contingent accidental circumstances. Thus, Jüngken and other writers, not to repeat the foregoing divisions, also insist on senile, scorbutic, abdominal, herpetic, and psoric ophthalmia. To inflammation of the conjunctiva or mucous expansion spread over the anterior surface of the eye, and reflected beneath the eyelids, are variously applied the terms conjunctivitis, catarrhal, and serofulous ophthalmia, ophthalmia of the new-born, purulent, Egyptian, and gonorrhœal ophthalmia. Serofulous ophthalmia, so termed, is merely common ophthalmia occurring in serofulous subjects. The photophobia and epiphora, otherwise, intolerance of light, and tearfulness, ascribed by Mackenzie and Lawrence to serofulous ophthalmia, never subsist without corneitis or iritis; the erysipelatous ophthalmia of Beer and his followers, has no separate entity. Pustules, indeed, may ensue in variola on the conjunctiva and cornea, inducing staphyloma, opacity, perhaps protrusion of the iris, and blindness. Mackenzie, also, speaks of secondary variolous ophthalmia, with onyx and nebulous cornea, even after pustules have blackened, and the scabs fallen. Scarlatinous and morbillous ophthalmia is enumerated by some writers. Rheumatic ophthalmia, so termed, with the narrow, red, or rose-coloured zone, photophobia, and epiphora, is not inflammation of the sclerotic, which, as Velpeau has shewn, is dense, bloodless, and insensible, or of the conjunctiva, but of the cornea, iris, and retina. The irritable ophthalmia of Middlemore, the writer just named, would ascribe to diphtheritic blepharitis, ulcerative corneitis, or retinitis. In arthritic or gouty ophthalmia, so named, the frothy mucus is also referable to diphtheritic blepharitis; the bluish sclerotic and varicose conjunctiva to disease of the choroid, and the grey circle round the cornea, and radiated zone of the sclerotic, to iritis.

Ophthalmia may ensue in a form so mild, as hardly to attract attention, or it may go the length of inducing intense local pain and disorganization with general constitutional irritation. Ordinary mild ophthalmia to which Mackenzie and Lawrence prefix the epithet catarrhal, is very well described by the former as inflammation almost entirely confined to the conjunctiva and Meibomian follicles, with increased and thickened mucous, occasionally puriform, oftener, perhaps, transparent discharge: while the Meibomian secretion of increased quantity, and changed by disease, concretes on the margin of the lids and between the eyelashes, binding them together at night. The conjunctiva is red and injected, more so as we recede from the cornea, while the vascular net-work can be moved about with the finger. Sometimes ecchymosis ensues, bloody patches are effused beneath the membrane, and, in severe cases, chemosis—that is to say, the tumid, injected, crimson-coloured conjunctiva rises on every side above the cornea, so that the latter is actually depressed. This condition appears to arise from a sort of strangulation; the chemosed part, however, is occasionally infiltrated with serum. Velpeau dilates on the fact of vision in many instances of chemosis, remaining completely unimpaired, the cornea retaining its wonted transparency in the midst of the circumambient swollen tissues. The lachrymal discharge is often diminished; the patient does not complain much, if at all, of the light; but the sensation of sand or grit under the eyelids, produced by the turgid state of the parts, is universal, so that the patient submits his eye to inspection with reluctance. People in general—medical men, even, as Mr. Guthrie remarks, can hardly be brought

to believe that there is not something under the eye-lids. Occasionally, indeed, ophthalmic irritation is induced by the presence of small particles of stone or iron which the eyelid cannot readily wipe away, but which Demours removed with the point of a lancet or tooth-pick—I have found a feather to answer. Inflammation rarely extends to the cornea; the injected venous and arterial branches, indeed, suddenly terminate at its margin. Epidemic catarrhal ophthalmia has been witnessed in England, Italy, the Netherlands, and France. The term *taraxis* has been applied to slight cases; angular ophthalmia to ophthalmia confined to one canthus; and xerophthalmia to ophthalmia with diminished secretion.

Local ophthalmia sometimes implicates the oculo-palpebral groove, much in the manner, Velpeau observes, of a small acuminate phlegmon or pustule, which, if this do not occur spontaneously, we open to give issue to a little pus, after which it disappears. The writer just named, considers apthous or papular conjunctivitis, too often confounded with ulcer or abscess, though there be neither loss of substance nor discharge of matter, the most frequent local form. There is generally but one aptha in each angle: two or three, however, may be agglomerated; they may also subsist on the superior or inferior region of the eye, and in a very few instances, contrary to the opinion of Sichel, extend over the cornea itself, in which last case there are epiphora and photophobia. The term blepharitis has been employed to designate conjunctivitis of the eyelids, further divided into mucous, glandular, and ciliary. Mucous blepharitis Velpeau subdivides into simple, granular, and purulent; glandular blepharitis into simple and diphtheritic; ciliary blepharitis into dry or furfuraceous, humid, ulcerative, and follicular. Simple mucous blepharitis is more frequent in the lower eyelid, contiguous to the eyeball. Here, also, the patient complains of a sensation of sand, gravel, or hair between the eyeball and lid. The term granular, as applied to blepharitis, is hardly correct, since granules are but the result of inflammation, of Egyptian ophthalmia in particular, so often followed by hypertrophy and irregularity of the conjunctiva, somewhat resembling shagreen. The term granules, in the sense of granulation, applied properly enough to irregularity of surface, is justly objected to by Mackenzie. He refers them to enlargement of the Meibomian acini; Velpeau, however, considers them an abnormal development of the mucous follicles, which, being evident in the palpebral conjunctiva, may be presumed to exist on the eyeball itself. The latter states, from observation, that ophthalmia of the new-born, commences, and sometimes runs its whole course confined to the lining of the eyelid. Simple glandular blepharitis is confined to the Meibomian glands or follicles of the tarsi, and is attended with itching, viscid secretion, and a sensation of sand in the eye. In some cases there is a trace of false membranes—hence the term diphtheritic. Ciliary blepharitis is humid or marked by a furfuraceous excretion and considerable itching; but no sensation of foreign bodies, no conjunctival reddening, no morbid secretion from the glands of Meibomius. This condition of the tarsi to which the term psorophthalmia is frequently applied, Laugier alleges to be frequent after small-pox, scarlatina, and ordinary ophthalmia. Ulcerative ciliary blepharitis, as the name denotes, is marked by excoriations along the free margins of the tarsal cartilages; follicular, resides in the follicles at the roots of the eyelashes, and not in the glands of Meibomius. The latter

begins with small pustules about the size of a pin-head, somewhat hard and red towards the base, and ending in a yellowish or whitish point. One of the results of chronic ciliary blepharitis, whether follicular, furfuraceous, or ulcerative, is loss of the eyelashes. In plethoric subjects, blood may be taken from the arm, or leeches applied behind the ear. Our main resort, however, is the nitrate of silver, which may be applied in the form of a conical stick, the eyelids being properly reversed, till the membrane be covered with a white pellicle. This salt has been employed in ointment and solution; also, the sulphate of copper, ointment of white precipitate, from five to ten grains to the drachm; likewise, liquid collyria, whether of alum, acetate of lead, or sulphate of zinc. The nitrate of silver is truly efficient, but to avoid the dark margin which it induces, we may substitute ointment of the acid nitrate of mercury.

The difference between common conjunctivitis and Egyptian ophthalmia is probably more in degree than kind. Mackenzie, from observation, is of opinion that ordinary conjunctivitis, owing to neglect or improper treatment, may take on a purulent aspect, and assume the power of reproduction by contact, in which case the symptoms are more violent, and the discharge proportionably abundant and opaque. He notices Guilié's experiments at Paris, in which matter from children labouring under purulent conjunctivitis, was introduced under the eyelids of four amaurotic children with the production of the disease in each. Egyptian ophthalmia attacks one or both eyes, commonly both, sometimes at once, at others in succession, and with such violence that in ten, twelve, or four and twenty hours, vision, perhaps, is irrevocably destroyed. It generally begins with a sense of itching, which is speedily converted into one as if sand or gravel were lodged under the eyelids, of which the conjunctiva as well as the caruncula lachrymalis, is red and swollen. There is first a viscid mucous, sometimes a sanguineous, lastly, a thick yellow purulent discharge, which, according to Vetch, in certain cases, amounts to some ounces daily. The eyelids swell enormously—the upper one in particular, which advances over the lower, and protrudes on the cheek, while the inner surface of the lids becomes of a scarlet, or even livid hue. The complaint may now lapse into chronicity, remaining weeks or months nearly stationary, at the end of which time convalescence ensues, or the disease, from imprudence, intoxication, or exposure, reassumes the acute aspect. More frequently, however, inflammation extends to the conjunctiva of the eyeball, which becomes equally turgid; chemosis ensues round the cornea, which is greatly depressed, often hardly visible; the cavity, perhaps, filling up with concrete pus simulating opacity or destruction of this membrane, a result, unhappily, of frequent occurrence. At this stage, too, the conjunctiva is apt to protrude between the lids. In many cases, these swell rapidly, as if stung by an insect, and the tarsal margins—those of the lower lid in particular, may be more or less reversed. Often the cornea ulcerates, the iris adheres or even projects, constituting a species of staphyloma, through the openings. At other times, its layers become successively disorganized, inflammation extends to the interior of the eye, the lens and vitreous humour are discharged, and the organ collapses. Vetch mentions cases in which, in place of sloughing or bursting, the cornea gave way, as if cut with a knife. After the latter

has been destroyed, prior to expulsion of the lens, the patient may be tantalized with restoration of vision, ere a darkness ensue, which the grave alone can dispel. Before this catastrophic, the pains, happily intermitting, are in the last degree agonizing. In slight cases, the febrile reaction is inconsiderable; in others, there is a hard, full, occasionally soft pulse, with thirst, and hot surface. Such, briefly, is the course of this shocking disorder, under which the greater part of the French army, according to Assalini, at one time laboured. It was imported into England, as well as other European countries; and different writers dwell on the loss of vision, in one or both eyes, in British soldiers returned from Egypt, the inmates of hospitals, military asylums, schools, and barracks, into which it had gained access. In Paris, several epidemics of purulent ophthalmia, as in 1806, 1830, 1832—the last very well described by Piorry in his *Clinique*, have arisen. Jüngken speaks of the existence of the complaint in the Prussian, Austrian, and Polish armies; indeed, it extended to every European army, and, up to a very recent date, committed great ravages among the Belgian troops. Instances even occurred, at sea, in crowded slavers more especially, wherein the greater part, or even the whole, became blind, to the consequent destruction of all on board. M'Grigor mentions a nurse who contracted purulent ophthalmia, owing to matter, while syringing the eye of a patient, being spurted into her own: another nurse had to regret the loss of her right eye, from the inadvertent application of an infected sponge. He further relates the propagation of the disorder among the children of an asylum hospital, in such a manner as to prove, most conclusively, the propagation of the disease by contact—a doctrine further admitted by the Belgian surgeons. Assalini, contrary to the opinion of Larry, however, denied contagion; and a regimental surgeon, it is said, Mr. Macesy, actually applied a rag soaked in ophthalmic pus to both eyes, without contracting the disorder. In Egypt, some, as Prosper Alpinus, *De Medicina Egyptiorum*, have ascribed its endemic origin to the drifting sands; others to the glaring sun, white buildings, and comparatively cool nights. There, at any rate, the disease is commonest among the poor and exposed; and Vetch, speaking of some officers who slept in a tent, mentions that those who bandaged their eyes escaped, whereas the others contracted ophthalmia.

The symptoms, as rapid chemosis, purulent discharge, tumefaction of the eyelids and conjunctiva, fever, and sleeplessness, in gonorrhœal ophthalmia, are altogether the same as those already related; so much so, indeed, that while some refer gonorrhœa to contact with ophthalmic pus, others ascribe ophthalmia to gonorrhœa. Here Rust compares the aspect of the conjunctiva to a slice of smoked salmon. In fourteen cases by Lawrence, loss of vision from sloughing, ulceration, or opacity of the cornea, ensued in nine; while, in the same number, one eye only was affected. Mackenzie relates a case in which the disease was induced by a drop of gonorrhœal matter from the patient's urethra, and quotes others. In the first of these, a boy of seventeen, labouring under gonorrhœa, contracted ophthalmia with the loss of both eyes; a younger brother, who slept in the same room, also acquired the disease, with the loss of an eye. In the next, it came on from washing the eyes with the urine during a gonorrhœal running. In a third, a young woman lost her eye, in consequence of the application of an infected

sponge. Bacot mentions two instances occurring in washerwomen; Wardrop another after handling foul linen, the patient becoming blind; also an old lady in whom vision was destroyed, in the course of a few days, from the application of an infected towel. Malingering soldiers have been known to induce the disease on purpose. Beer's cases of metastatic gonorrhœal ophthalmia occurred in robust young men, inflammation ensuing shortly after the running had stopped. Brodie, Vetch, and Abernethy, record others. Swediaur witnessed several instances, though not in his own patients. In one of these, a captain labouring under severe gonorrhœa, was obliged to mount guard during a very cold day. At night excessive pain ensued, and he could bear no light. Next day there was puriform discharge from both eyes, on the one ensuing, followed by opacity of the cornea and hypopion. Ten or twelve days after, inflammation had subsided, but the patient was blind. Gonorrhœal ophthalmia, as Swediaur, Mackenzie, and others state, is rare in women, which Gibert ascribes to the arrangement of their garments and different sexual conformation. Lagneau, however, asserts its occurrence in both sexes; and Sanson, who doubts the propagation of the disorder by contact, avers that women are liable to blennorrhagic ophthalmia, even when labouring under nothing but whites. I find no instance of this on record, however, except one by Gibert published in the first volume of the *Bibliothèque Médicale*, in the case of a lady of twenty-seven, and in whom leucorrhœa had been suppressed by means of lotions with diluted vinegar, in which the Provence rose was infused.

Ophthalmia of the new-born is generally supposed to arise from contact of gonorrhœal or leucorrhœal matter during the child's transit into the world. I have certainly, with Gibert, witnessed the disease in cases in which there was neither gonorrhœa nor leucorrhœa; while, on the other hand, though leucorrhœa be common among those in easy circumstances, ophthalmia is very rare in their offspring. Carron du Villards says he has seen it communicated from the nurse to the child. Ophthalmia neonatorum, according to Jüngken, with whom I heartily concur, is most frequent among children of the poor, preferably in weak cachectic subjects, after exposure to cold, sudden impressions of light, and foul air, appearing within the first four and twenty hours, or not perhaps till after the lapse of six or eight weeks. Mackenzie says it is usually witnessed on the morning of the third day after birth. Billard and Baron both advert to the occurrence of a transverse line of redness on the eyelids, before the supervention of puriform secretion. This disease, unless arrested, too often runs a course not less destructive than that of Egyptian or gonorrhœal ophthalmia. The attendants are not sufficiently alarmed at what they consider a little running, when the cornea, perchance, gives way, the aqueous, then the vitreous humour is discharged, and vision irretrievably lost. Whenever, observes Mackenzie, the person who brings the child announces that the disease has subsisted for three weeks, the lids are opened, too often to find one or both cornea gone, and the iris protruding. Of two twins, one, he mentions, had lost the sight of both eyes, while the other retained very partially the use of one.

In the treatment of ophthalmia, topical has obtained a decided preference over general treatment. So far as my own comparatively limited experience has gone, I never found leeching, bleeding from the arm,

emetics or purgatives, to possess half the efficacy of local cauterization. Mackenzie knows of no inflammatory disease of the eye curable by bleeding alone; and he sets down as veriest folly the idea of treating Egyptian or contagious ophthalmia by taking away blood till the inflamed membranes grow pale by depletion. In ordinary conjunctivitis, however, leeches, as he recommends, from one to twenty, may be applied, not to the loose substance of the eyelids, but on the temple, forehead, and sides of the nose. In chronic cases, indeed, one or two to the inner surface of the eyelid are often useful. In the event of considerable synocha, venesection in the arm is esteemed preferable to arteriotomy or section of the jugular. Scarpa's method of removing a circular fold of the conjunctiva round the cornea, has given way, in case of chemosis, to simple scarification and snipping the enlarged vessels with a pair of scissors; raising the conjunctiva for that purpose with a forceps, and, if necessary, seizing the inflamed vessel with a small hook. In order to scarify, one or two deep incisions are made along the inner surface of either eyelid, alternately everting and allowing the lid to resume its natural position, so as to ensure a sufficient flow of blood. Mackenzie has known early purges of calomel and jalap to check the disorder. Emetics serve to lower the circulation and relax the surface; diaphoretics, as Dover's powder and bathing the feet, active measures having been premised, are similarly useful. The apartment may be moderately heated and lighted. We employ the solution or ointment of the nitrate of silver, from four to ten grains to the ounce, beginning say with the one, and ending with the other. Some, as Mackenzie, prefer the solution; others, as Guthrie, the ointment: either answers uncommonly well. Both, as liable to decomposition, should be recently prepared. The solution, a drop at a time, by means of a hair pencil, or about the size of a pea of the ointment, may be introduced once, twice, or even thrice a day, into the eye; the lid being moved up and down, so as to diffuse the nitrate, whether suspended by lard or water, equally over the surface of the conjunctiva. Mackenzie, at the same time, foment the eye thrice a day, with a tepid collyrium, consisting of one grain of corrosive sublimate in eight ounces of water; and, at night, a little citron ointment, or one composed of a grain and half of red precipitate to the drachm, applied to the edges of the lids. Ulceration or opacity of the cornea never follows this procedure, which has the further suffrages of Beer, Ridgway, O'Halloran, Lawrence, Bacot, Velpeau, and Gendrin. Melin thus treated three hundred, and Mackenzie many hundred cases of ophthalmia, with uniform success. Velpeau is equally eulogistic; and I may add my own limited, but, so far as it goes, well-founded testimony. The eye may be further stiped with water agreeably warm, throughout the day; the reaction which follows cold applications renders them commonly less advisable. Chronic ophthalmia may be similarly dealt with; and here the nitrate will be found to supersede blisters, whether behind the ears, or to the nape, astringent ointments, collyria of the sulphate of zinc, acetate of lead, or wine of opium. In any case, premature exposure, currents of cold air, and wet feet, must be avoided.

The treatment of purulent ophthalmia is essentially the same; the earlier, however, it is instituted, the more successful does it prove. Hence, those who have the charge of numbers under suspicious circumstances, should submit the eyes of the apparently well to daily

inspection. Moderate purging and adequate depletion are occasionally useful; but to rely on such, or on astringent collyria, is merely to tamper with the disease, and subject the patient to the terrible calamity of loss of vision. Few, says Jacob, when there are severe scalding, with chemosis overlapping the cornea and projecting between the eyelids, will feel inclined to soak the eye in a ten-grain solution or ointment of the nitrato of silver. All I can say is, if the practitioner be so ill-advised as to neglect the early employment of this powerful remedy, the sufferer will incur the imminent risk already signalized. Last year, says Sanson, a young man came to the Hôtel Dieu, with double bleb-norrhagic ophthalmia only dating from the preceding evening. Copious venesection, arteriotomy, and incessant leeching, kept up for four days, were resorted to; but for all this, and notwithstanding setons in the neck, drastic purgatives, and sublimato lotions, perforation of both corneæ ensued. Some time after, a Pole entered, with gonorrhœal ophthalmia of four and twenty hours' standing, in one eye. Twenty-five leeches were applied to the temple; next morning he was largely bled and purged, a seton was placed in the neck, with copious leeching for four and twenty hours, and astringent lotions between the eyelids—on the following day, however, the cornea softened and burst. Some short time after, the remaining eye was seized; the patient was too weak to be bled again, moreover the most energetic measures had already failed. Sanson thereupon proceeded to excise the conjunctiva, and apply the nitrate of silver, whereby the eye was completely preserved. And such conviction does he entertain of its efficacy, that did swelling of the eyelids render separation impossible, he would not hesitate to divide their external commissure. The discharge may be washed away by collyria of corrosive sublimate, and the lid kept from adhering by means of red precipitate salve. Scarification may be occasionally expedient, also paracentesis of the cornea, with a view to prevent its bursting, as recommended by Wardrop and Patrick M'Grigor. Cold lotions, salivation, compression, and, in the last stages, free exposure, have their several advocates; but early, copious application of the nitrate of silver, whether in substance, solution, or in an ointment, possessing, as it does, the irrefragable suffrage of practical men, is infinitely preferable. Velpeau esteems its efficacy as really marvellous. Intense conjunctivitis, with or without chemosis, of two, three, six, or eight days' standing, was dissipated, without altering the habits of the patient, on an infinity of occasions, as if by enchantment. It supersedes scarification, partial excision of the chemosis, and leeches to the conjunctiva; in fine, for ten years, associated or not with general measures, it never failed to subdue pure inflammatory conjunctivitis. As regards bleb-norrhagic ophthalmia, Sichel affirms, that if in the treatment the least trace of granulations be allowed to remain on the mucous membrane, the disease is liable to return. Velpeau, in his *Clinique*, mentions a case of gonorrhœal ophthalmia, in which a large ulcer had nearly penetrated through the left cornea. He employed compression, filling up the eye with lint, as a last resource, and was agreeably surprised to find the ulcer heal, and the sight preserved. In the purulent ophthalmia of infants, the lids may be gently opened, replacing the swollen conjunctiva, and everted eyelids; then dropping in, once or twice a day, a solution of four grains of the nitrate of silver, or six of the sulphate of copper to the

ounce. During the day, the eye may be washed with the sublimate collyrium, and the red precipitate ointment applied to the lids at night. The first night the child sleeps more quietly; and a couple of applications, early resorted to, commonly suffice to cure. When the complaint has been neglected, Mackenzie scarifies the conjunctiva, or applies a leech to the upper eyelid, maintaining a drain behind the ear, by means of a little cantharides plaster, spread on candle-wick. Ware kept the eyelids apart by means of lard or fresh butter. In my mind, the nitrate of silver, in solution, is equally safe, and every way preferable. Billard, in his notes to Lawrence's Lectures, relates the spontaneous disappearance of opacity of both corneæ after purulent ophthalmia in a couple of years; and Vetch mentions its cessation during the progress of phthisis. Dieffenbach has removed partial leucoma or opacity, by means of two elliptical incisions, which were immediately united by a couple of fine sutures. It has even been proposed, in cases of nebulous cornea, to supply the deficiency from the inferior animals.

It was long after the essays of Vetch, Wardrop, and the subsequent ones of Hauffbauer and Mirault, that the separate occurrence of inflammation of the cornea—for it was long known to be occasionally implicated in purulent ophthalmia, was sufficiently recognized. In ceratitis or keratitis—*Hornhautentzündung*, patients, observes Jüngken, see objects as if through a smoke or mist; while the cornea itself appears dull and turbid, much as if covered with a little fine dust—*feinem Staube*, or like glass, whence the polish has been removed. Keratitis is often united with iritis, and accompanies every form of ophthalmia, penetrating beyond the cornea. It is, for example, coincident with rheumatic or scrofulous ophthalmia, so named, as well as with purulent, gonorrhœal, Egyptian, or infantile. It induces various structural changes, abscess, ulcers, and opacity more especially. Keratitis is not very rare; Velpeau mentions having met with more than a hundred instances. It may be acute or chronic, internal or external, interstitial, diffuse, or circumscribed. Commonest in infancy, it may ensue at any age in broken-down persons, those destitute of necessities, and exposed to atmospheric vicissitudes. Local causes are wounds, blows, burns, and the like. Mackenzie speaks of what he terms strumous keratitis as being most frequent. He adverts to its production by the glare of torches at night, but does not deny the influence of cold, which, applied to the forehead and temples, Weller esteems the principal cause. Gout, scrofula, syphilis, also the radiating heat from furnaces, are likewise alleged. Inflammation, according to Lawrence, may commence in the cornea and remain in it, or extend to the neighbouring parts; on the other hand, it may begin, he affirms, in the sclerotic and conjunctiva, and spread to the cornea. If there be no lesion of continuity, the cornea may become simply opalescent, more or less soft and protuberant, with little, and that superficial, pain. In case of a wound or supervening ulceration, there are epiphora, and when the eye is uncovered, photophobia; the cornea becoming soft, thick, and readily suppurating, with pain extending to the bottom of the orbit. When exterior, or perikeratitis proceeds from the circumference to the centre, the membrane at first assumes a sea-green hue, and, if examined with a lens, or even the naked eye, displays a granular aspect, as if more or less covered with sand. Here the conjunctiva forms a narrow ring, perhaps advan-

cing a quarter or half a line over the surface of the cornea; sometimes, indeed, prolonging itself in the form of a triangular plate, the base as in pterygium, resting on the sclerotic, and supporting a little whitish pustule. Sometimes the cornea is so much covered, that it assumes a red colour resembling a bit of cloth or pampus. One layer of the ring, violet, purple, or minium-coloured, with tortuous, moveable vessels anastomosing with each other, belongs to the conjunctiva; the other, deep-seated, of a pale carmine hue, placed over the sclerotic, near the cornea, is composed of fine convergent vessels, apparently formed by anastomosis of the long ciliary arteries, with those of the conjunctiva in the vicinity of the ciliary circle. This ring is to be distinguished from the senile arch, gerontoxon, the result of old age, in a few rare instances, hereditary. When superficial keratitis spreads, the outer or conjunctival covering rises in the form of a phlyctena, or is even excoriated. Towards the margin it often appears as if indented by the nail; at others, there are transparent depressions like crystal facets. Interstitial keratitis is attended with more or less visual dulness, but without any discernible granulation of the surface. Deep-seated redness, well defined on the margin of the iris, is considerable from the first. Anterior radiations of the vascular ring, owing to marginal opalescence of the cornea, are less evident; and appear separated from the yet clear portion of the cornea, by a yellow dark-coloured zone, not always however circular, constituting that more extended opacity which receives the name of onyx. Internal, or endo-keratitis, is marked by turbidity of the aqueous humour, perhaps amounting to hypopion. Inflammation of the interior coat, the aquo-capsulitis of Mackenzie, often joined with that of the other two, in severe cases is attended with effusion of lymph in the lining membrane of the cornea, perhaps leading to adhesions with the iris. There is increase of the fluid contents of the anterior chamber, with a sense of fulness and distention in the eyeball. In other respects, keratitis may terminate in resolution, ulceration, softening, suppuration, and gangrene. In rapid cases, as sometimes happens after extraction of cataract, and in purulent ophthalmia, the cornea has been known to lose its lucidity, and to become red, soft, and infiltrated, in four and twenty hours. Velpeau mentions sphaelus from carbuncle, in which, so soon as the eye could be looked at, the livid cornea wore the aspect of a cherry. Chronic keratitis presents much the same characters as acute; opacity of the cornea, and consequent loss of vision, are among its frequent results. The treatment of idiopathic keratitis is anything but satisfactory. Wardrop has relieved the fulness and distention by evacuating the aqueous humour with a cataract or iris knife near the junction of the cornea and sclerotic. Copious, general, and local depletion, colchicum, with other purgatives and counterirritation, have severally been resorted to. Velpeau tried mercury as an alterative, purgative, and sialagogue, as well as emetics, without any marked advantage. He found four cases of opacity, however, from deposition of coagulable lymph, to yield to mercurial frictions over the orbit, as recommended by Stöber. Mackenzie and Lawrence justly deprecate local stimuli in the early stages; but these elapsed, have no objection to red precipitate ointment, solution of nitrate of silver, and vinum opii. Velpeau attaches much importance to vesication of the eyelids, these firmly closed, being previously rubbed with a little vine-

gar. The plaster applied, the hollow is filled with lint, and maintained by a bandage. Next day the plaster is removed, and the advantages are soon apparent. He has employed astringent injections in softening of the cornea, the kerato-malaxis of Stöber, with indifferent success. Ulcers, of which several varieties are described by authors, are efficiently treated by cauterization with the nitrate of silver. It is not generally known, that perforation of the human cornea, apart from inflammation, may ensue, as in the inferior animals, from excessive inanition and profuse blood-letting. If early attended to, vision perchance may be saved. Abscess and onyx disperse of themselves by spontaneous evacuation or otherwise; the lancet is only, if at all, expedient when matter is considerable, or the opening tardy.

Iritis, of late years, has received considerable attention. It is often united, oftener indeed than otherwise, with inflammation of the inner, and perhaps outer layer of the cornea, and deep-seated structures, as the crystalline capsule, choroid coat, vitreous humour, and retina. Writers advert to numerous species of iritis; these, however, are no better than nosological fantasies. Velpeau divides iritis into three periods or stages; in the first, in which there is little or no febrile reaction, the membrane retains its form and motility, the anterior of the cornea covered with tears, is unusually brilliant, but, any more than the conjunctiva, is not inflamed. A red circle, formed of minute vessels, disposed, as near as may be, in parallel order, may be seen, close to the ciliary circle, in the sclerotic. The first stages, as Mackenzie observes, unless the upper eyelid be raised, and the ball carefully inspected, may be overlooked. The pupil of the affected eye is smaller and comparatively motionless; the central opening becomes gradually duller, and the inner circumference, sometimes inclined forward, sometimes backward, assumes a velvety aspect of variable hue. In persons in whom the iris is blue, it becomes greenish or yellowish; when brown, it turns red; if naturally grey, it comes to wear a dull appearance. The whole membrane becomes turgid, thick, and of a villous aspect; at the same time, patients complain of throbbing pain and distention in the orbit. Men in business, as Mackenzie observes, are apt to close the affected eye while they employ the other; indeed I have known the disease to gain considerable head before the patient was well aware that any thing was the matter with him. Jüngken has described iritis briefly and well. It begins, he says, with lacerating pain and pressure, extending down the forehead, and becoming worse towards the afternoon. There are tearfulness and intolerance of light; the patient, unable to use his eye, finds every motion irksome. The membrane grows stiff and rigid, in blue eyes of a greenish hue; the pupil loses its dimensions, and grows turgid; the fibrous structure becomes impaired and converted into a soft amorphous mass. Subsequently, the pupil is seen fringed, unequal, and angular; flocculi, or filaments of lymph, are disposed in points, or as a cloud of net-work. At this period, synechia, or adhesion between the iris and cornea, or between the iris and capsule of the lens, is apt to ensue. The margin of the pupil becomes pale or yellowish; small ecchymoses, perhaps amounting to bloody deposits, are seen, the aqueous humour at the same time losing its clearness. In acute cases, we have more or less conjunctivitis, and a vascular ring as obtains in corneitis, over the tissue of the sclerotic. Here the pupil, as

Gillet de Grammont has shewn, becomes oblong, rhomboidal, polygonal, or even square. Pus and coagulable lymph are at times deposited in the substance of the iris; while flocculi of coagulable lymph, assuming the aspect of false membranes, fill the pupil, and induce false cataract; the pupil, if not quite closed, becomes wholly immoveable; and the ball of the eye, which feels too small for its contents, is acutely painful on the slightest pressure.

If early attended to, the disease may be subdued, the iris recovering its natural aspect and brilliancy, while the coagulable lymph, as Lawrence observes, is absorbed; at other times, atresia, as the ophthalmologists term it, ensues, the pupil being perhaps contracted to the size of a pin-hole, through which, as Mackenzie remarks, the patient enjoys a degree of vision, beyond all expectation. When the choroid coat and retina, however, as he adds, are attacked and destroyed, it cannot be expected that openings, whether artificial or spontaneous, should restore vision. It may, indeed, happen that several structures are irrecoverably impaired before the disease is even witnessed; with, as Lawrence remarks, bright external redness, great vascular distention, rapid and general change of colour in the iris, contraction of the pupil, effusion of lymph, dulness of the cornea, agonizing pain, headache, fever, sleeplessness, and loss of vision. These are more especially observable when the disease commences in the subacute or chronic form. Alterations, however, which occur in the course of a few days in the former, may not take place in the latter till after the lapse of five or six weeks; and then, perhaps, so slowly, that effusion of lymph and adhesions may form without much pain or vascularity, the patient, perhaps, only detecting loss of vision from casual closure of the sound eye. In one of Lawrence's cases, a lady who spent much time in needle-work, experienced, for some months, a dimness in the right eye, at first a little bloodshot. Three adhesions, rendered visible by belladonna, subsisted in the pupil of this eye, of which all useful vision was gone; three had formed in the left, of which the sight was dim. In another, a lady who had made great use of her eyes, found, on looking at a picture with the left eye shut, that vision in the right was lost. An oculist whom she consulted, affirmed that the blind eye had originally been defective, and allowed the patient to employ the other. This becoming diseased, Mr. Lawrence was consulted, and discovered inflammation in the left iris, with adhesion of the pupil, slight external redness, and some pain. The iris of the right was altered in appearance, with slender dark adhesions. Velpeau is of opinion, and I feel assured with great justice, that incomplete amaurosis, so termed, is often nothing but chronic iritis. Retinitis and choroiditis are often combined; but Mackenzie thinks that the latter may subsist separately, and gives as symptoms, discoloration of the sclerotic from pressure of the inflamed choroid, with deep blue protrusions, perhaps the size of a filbert, termed sclerotic staphyloma, displacement of the pupil, redness, and extinct vision. Inflammation of the retina may be combined or not with iritis, and extend to the choroid, vitreous humour, capsule of the lens, and lens. Mackenzie esteems blindness from lightning, the glare of molten metal, new fallen snow, and the like, as forms of retinitis. The prolonged contemplation of minute objects, reading, writing, and watch-making, are also reckoned sources of this inflammation, which is characterized by pain, tension,

fever, impaired vision, and flashes of light before the eye. Sichel further adds photophobia and epiphora ; but Beer, Schmidt, Jüngken, and Rosas, consider them characteristic of iritis, while Velpeau, again, connects such with keratitis, the least abrasion of the cornea inducing them. The terms scrofulous, rheumatic, arthritic or gouty, typhoid, mercurial, and syphilitic iritis, are significant as to causes real or supposed of the disease. Lawrence considers syphilitic iritis as the most common form, and esteems it as unequivocal a consequence of syphilitic infection as any other secondary aspect of the disease. He admits, however, that only two infants labouring under syphilitic iritis came before him. Gibert, who has often witnessed it in the hospital of St. Louis, mentions that it is commonly in the chronic form, occasionally acute, and concurrent with other syphilitic affections, cutaneous eruptions more especially. Beer describes displacement of the pupil and condilomata of the iris as worthy of note in syphilitic iritis ; purulent cysts, however, bursting into the anterior chamber, and constituting a species of hypopion, are not peculiar to it. Mackenzie says that, in neglected cases, it does not, like rheumatic iritis, wear itself out, ending in simple loss of vision by closure of the pupil, but goes from texture to texture, till the whole are disorganized. Iritis may prove a sequence of corneitis ; it may also ensue in the traumatic form, after operations for cataract and artificial pupil. I am strongly inclined to think, however, that cold, even in syphilitic cases, aided, no doubt, by the constitutional deterioration which syphilis and mercury alike induce, is a more frequent cause than what is commonly supposed. I have met iritis with deformed pupil, effusion of coagulable lymph, and adhesions between the iris and pupil, in consumptive and scrofulous subjects, as well as others in whom no constitutional impairment was evident.

The treatment of iritis, whether simple or complicated, in all its alleged varieties, is essentially that of ordinary inflammation—venesection, namely, leeching, counterirritation, purgatives, and mercury. In robust vigorous subjects, inflammation running high, we should bleed largely. When Velpeau sees the disease early, and in severe attacks, he detracts from eight to sixteen ounces, morning and evening, from the arm, applying, at the same time, twenty or thirty leeches to the temples, or mastoid processes. In slighter cases, bleeding having been premised, he confines himself, during four or six days, to two or three detractions of from eight to twelve ounces ; and the first period elapsed, he applies leeches to the temples and behind the ear, alternately. When the first period of the inflammation has subsided, two or three leeches in a row, every second or third day, for eight or ten days, inside the lower eyelid or on the conjunctiva, a line's breadth below the ciliary margin, give little pain, and induce a beneficial disgorgement. I have met with iritis, however, in cases wherein, although local depletion might be practised, general depletion was out of the question. Mercury, so as to induce salivation, is not less beneficial in iritis than other inflammations : it has even been exhibited with advantage in cases in which this mineral was supposed to have some share in the production of the complaint. Full salivation, says Lawrence, quickly induced, cuts short the recent disease, as if by a charm ; when the malady is of some standing, however, in relapses and second attacks, more especially, weeks, as I have known, may be necessary before mercurial action re-

stores the natural colour of the iris, lights up vision, dissipates the red zone round the cornea, and causes the absorption of effused lymph. In general, it is sufficient to touch the mouth. Calomel and opium, blue pill, mercury with chalk, Plummer's pill, or mercurial inunction, will severally ensure the desired result. It is well worthy of practical inquiry, how far, in certain cases—venesection, when proper, being premised, repeated doses of opium might not alone suffice. Free purging is a useful adjunct to venesection. Colchicum, in alleged rheumatic cases, has its advocates; Velpeau, however, in opposition to Kuhn and Carron du Villards, succeeded neither with the wine, tincture, nor extract. Tartarized antimony, in large doses, he esteems useful. Hugh Carmichael and Briggs, while they admit the efficacy of mercury, employ a drachm of turpentine made up with yolk of egg, almond emulsion, capillaire, and oil of cinnamon, in cases wherein the mineral is inadmissible. Lawrence sides with German practitioners as to the alleviation produced by rubbing the forehead, over night, with ten grains of mercurial ointment in two of finely powdered opium. Extract of belladonna is of peculiar efficacy in iritis, preventing contraction of the iris and consequent closure of the pupil; it will even elongate adhesions already formed. Langenbach recommends its being smeared over the eyebrow and eyelid every evening, not in collyria, as Gibert would have it; the more so, as, during sleep, there is a natural closure of the pupil, and it is then that the disease appears to make most progress. Even in neglected cases, as Mackenzie informs us, when the pupil is almost obliterated, belladonna employed for months, induces dilatation and corresponding visual amendment. A few days since, looking at the eye of a young lady who, after her disease was far advanced however, had placed herself under this gentleman's care, and who was employing the extract, the pupil of the right or sound eye was largely dilated, while the left, contrary to her wish or expectation, was comparatively small, communicating a singular expression to the countenance. He mentions the curious and important fact of the iris being forced from its attachments, with occasional permanent adhesion of the pigmentum or uvea to the capsule of the lens. Velpeau only advises belladonna towards the close of iritis, esteeming it hurtful to urge the inflamed fibres to act; Mackenzie, however, and I think he is right, never hesitates to employ it after blood-letting. In chronic iritis, we are to follow up mild antiphlogistics with belladonna inunction. The former tried the protiodide of mercury for a couple of months; he also counsels blisters to the orbit, and a caustic issue in the sub-occipital fossa. Here the diluted extract of belladonna may be dropped into the eye, and a mixture of belladonna, henbane, and mercurial ointment, rubbed on the eyebrow. The prognosis is rarely good. Collyria have few advocates; Carron du Villards, however, recommends a quarter of a grain of the cyanide or bichloride of mercury, suitably diluted in laurel water; also, mercurial fumigations; Velpeau, infusion of mallows with calomel, or half a grain of sublimate in an ounce of water. Trusting to collyria, as sometimes done in the early stages, to the neglect of more active measures, however, in inflammation of deep-seated structures, is to be guilty of destructive supineness. I was consulted in the case of a retired practitioner, since dead, whose right eye had been treated, by a professed oculist, with vinum opii, and things of that nature: vision, the loss of which bitterly re-

gretted, was completely extinct. Some time after, the other eye was seized with deep-seated pain, internal redness, epiphora, and photophobia. Here, however, the detraction of forty ounces of blood, in two bleedings, with copious leeching, blisters to the nape, and mercury, in all probability, averted a similar catastrophe.

XI—AMAUROSIS, GUTTA SERENA.

AMAUROSIS, in brief terms, may be defined as a paralytic affection of the retina, partially or wholly disqualifying it for the exercise of its peculiar functions. The remaining tissues may or may not retain their wonted integrity as to colour, form, function, and situation. The pupil is generally, but not always, motionless. When one eye is affected, the pupil of the other will frequently act sympathetically; but, if covered, commonly remains motionless. Instances, however, are related by Beer, of unnatural mobility subsisting with complete amaurosis. Gutta serena has been divided into sudden and gradual, complete and incomplete, terms that explain themselves. Incomplete amaurosis may be complicated or not, with visus muscarum, as if flies, hair, and snakes, *Haare und Schlangen*, as Jüngken terms them, sometimes, a net-work or cloudiness, scotomata, were floating through the air. These may subsist through life, without yielding to utter blindness: indeed, the visus muscarum, under which I have known the whole male members of a family to labour, is a common affection, more especially in dark-haired individuals. Sometimes there is double vision, diplopia; at others, though rarely, but half the objects are visible, or the retina retains its powers at one spot and loses them elsewhere. In some instances, objects appear with a tremulous iridescent aspect; at others, they are coloured variously, chruksia. Day or night vision, hemeralopia, nyctalopia, also, near or imperfect vision, amblyopia, may subsist. I have witnessed dryness of the eye and nostril of the affected side; also, in one or two instances, inability to raise the upper eyelid, ptosis, blepharoptosis. Richter, in his elements, mentions periodic amaurosis and ptosis, which came on at noon, and lasted twenty-four hours. In some cases, the light of day is too bright to be borne, while in others, patients seek the utmost glare of the sun or of artificial illumination. Very often the disease is associated with pains in the orbit, supra-orbital, and temporal regions. I have known these to accompany the best marked cases, while in others they were wholly absent. In the generality of instances, the pupil is unnaturally dilated, but I have witnessed some in which it was contracted to the utmost. It may preserve its circular form, or, probably from antecedent iritis, become oval, angular, or slit-shaped. The bottom of the eye, as seen through the pupil, has rarely the dark black hue of health, but becomes greenish, greyish, or yellowish. Beer speaks of a reddish aspect like what is seen in the eye of cats, which he ascribes to deficiency of the black pigment of the choroid coat. Sometimes the vitreous humour assumes a greenish or greyish tint, which Mackenzie, from repeated dissection, refers to deficiency of the pigmentum nigrum, and to which the term glaucoma has been affixed. The dull, fixed, meaningless aspect of the eye in amaurosis, has been

signalized by every observer. Flashes of light, particularly when the eye is pressed on, often ensue in amaurosis; and, though merely a subjective phenomenon, delude the patient with the belief of a sensibility to impressions of light that no longer really subsists.

Jüngken speaks of congestive or plethoric, hemorrhoidal, menstrual, nervous, hysterical, spasmodic, abdominal, verminose, arthritic, syphilitic, scrofulous, rheumatic, apoplectic, hydrocephalic, and intermittent amaurosis; also of amaurosis as a symptom of tabes dorsalis. The alleged causes, in fact, are of multifarious diversity; many of them, I fear, wholly unknown. They may, perhaps, be best divided into organic, as affecting the eye, and organic as affecting the brain or other points of the nervous system; and those from morbid sympathy connecting one or both, with other portions of the frame. The changes discernible during life, or visible after death, are various. Sometimes tumours benignant or otherwise, a cyst, an exostosis, a hydatid, or a tubercle, compress the optic nerve. Wounds, falls, blows, may induce, in a moment, what is otherwise the work of years. I witnessed at the Hôtel Dieu, protrusion of the whole globe of a girl's eye, from the thrust of a stick: the organ was replaced, but vision was gone. Ploucquet has seen the retina separated by varicose vessels from the choroid. Rousseau, Sanson, and Magendie, have found it ossified; and preparations, according to Jüngken, may be seen at the ophthalmic museum at Vienna. Schmidler and Ecker have witnessed dilatation of the central vein and artery of the retina; while Riolanus, Morgagni, Vesalius, Scultetus, and many others, record atrophy of one or both optic nerves. Pus and lymph were smeared over the meninges of an old man mentioned by Brodie, across whom a cart had passed, with fracture of the sphenoid, displacement of, and pressure on, the optic nerves, and loss of vision. The same writer noted sanguineous extravasation over the right hemisphere of a patient in St. George's, who had presented motionless insensible pupils, the right being dilated, and the left contracted. In another, with fracture and depression of the left parietal bone, the pupil of the same side was dilated, while the right was natural. Two with fracture and depression of the frontal bone above the right superciliary ridge, presented dilatation of the left pupil in one, and of both pupils in the other. Hennen describes extravasation between the meninges, with pupils sometimes contracting, sometimes expanding, on the approach of light. Mr. Spurgin witnessed aneurism, large as a hazel nut, in the right anterior cerebral artery, compressing the optic nerve. Howship describes induration of the brain in a case wherein amaurosis was complicated with epilepsy. The disease had been induced by the blow of a ruler at school; shortly before death, the trephine was applied. The same writer found dark induration of the middle lobe of the brain, which had pressed the optic nerve flat as tape. A slight blow on the right side of the head, received thirty years before in play, was the reputed source of the disease. In a case by Monteith, the medullary matter was completely removed from the sheaths of the optic nerves in an old lady who had become amaurotic thirty years before. A preparation in Mr. Langstaff's museum displays the optic nerves shrunk into white cords. In some of Beer's cases there was induration of the optic nerves, and adhesion to the sheath. Travers is of opinion, that congenital amaurosis may arise from intra-uterine thickening of

the retina. A fibro-osseous cyst, the size of a small egg, filled with tuberculous matter, flattening and almost destroying the optic nerves, is described in the eighth volume of the *Journal de Physiologie*; another also, by Plater, but here the scrofulous tumour was detached from the substance of the brain. Abercrombie records cerebral tumours marked by amaurosis before death. Moirah mentions a large hydatid in the right hemisphere of an amaurotic girl, with deafness, convulsions, and paralysis; and a similar case is related by Paw. Hunter discovered a fungoid tumour in the thalami, which had been the source of very similar symptoms. Tumours in the brains of amaurotic persons, behind the sphenoidal fossa, commonly lie on the side opposite the diseased eye; but both eyes may be affected. Rayner has connected enlargement of the pituitary glands with amaurosis. When the malady springs from fungoid tumours in the ethmoidal fossa, anosmia, or loss of smell, is commonly superadded. Amaurosis, as consequent on hydrocephalic effusion, is matter of too frequent occurrence. Demours mentions being often called in to children who became blind in the course of what he terms continued fever; and that in fatal cases, when permitted to examine, he always discovered water in the ventricles. Morbid alterations, however, as Marjolin observes, may subsist without amaurosis; as, on the other hand, the latter may ensue without appreciable change in nerves or structure of the eye.

External violence is sometimes the exciting cause. Demours gives the case of a youth who fell, while leaping his horse, somewhat roughly on the turf, receiving a contusion over the left orbit. The eye of the same side became amaurotic, the iris preserving its mobility even when the sound eye was covered. Larrey describes amaurosis with recovery, in a soldier from a fall on the occiput. The production of amaurosis from wounds over the eyebrow, often leading, as they do, to injury of the eye or brain, and disease of the bone, was adverted to long ago by Hippocrates in his prognostics. Morgagni speaks of a lady who lost her sight after being wounded, by the broken pane of a carriage, at that point of the orbit whence ramifications of the frontal nerve, a branch of the ophthalmic branch of the seventh, issue. Mackenzie and Lawrence relate many instances. Larrey, indeed, states that soldiers often lose vision when struck by spent balls in the situation in question. Shot, and even grains of gunpowder, have been known to induce the same result. Mackenzie mentions one who became amaurotic from a blow on the temporal side of the left eye. In these instances, blindness is usually ascribed to some lesion of one or more branches of the trigeminus, for example, of the fifth pair. We have to deduct, however, the influence of immediate concussion on the globe, ophthalmic inflammation, and cerebral disease. Mackenzie observes, that every wound of branches of the fifth does not induce blindness; Magendie, indeed, endeavoured to shew by direct experiments, that pricking the supra-orbital, infra-orbital, and lachrymal branches, had no such effect. The section of the trunk of the fifth, however, related in the *Journal Expérimentale de Physiologie*, induced, if not utter blindness, great visual impairment. Petit has affirmed, that division of the cervical portion of the great sympathetic was productive of debility of vision in the same side. Travers relates having arrested amaurosis by extraction of a carious tooth; the omission two years previously, having led to the

disease on the opposite side. Galenzowski's case, in which amaurosis was removed by extraction of a splinter of wood broken in a tooth, some would refer to lision of branches of the fifth. Here, however, the antrum was affected; and I refer to Mackenzie and others, for cases in which disease, not only of this, but of the frontal and sphenoidal sinuses, was connected with amaurosis. In other respects, direct shocks are productive of the disorder. The two hundred and sixty-first observation of Demours, which is followed by two similar ones, relates to a gentleman who incurred permanent loss of vision from rebound of a tennis-ball on the globe of the left eye. Mackenzie has seen repeated instances consequent on contusions, in which neither the vascularity nor transparency of the eye was affected. When retinitis, choroiditis, or other inflammation, proves consequent on injury, we cannot esteem the case one of unmixed amaurosis. Flashes of lightning, blindness from which is related by Richter, would seem to induce paralysis of the retina. An instance in which the sight of the left eye of a school-girl was thus lost, is related in the second volume of the London Medical Gazette. Exposure to intense light, indeed, often proves injurious. Every one knows that, in such cases, the retina retains the impression some time after. An instance is spoken of in the consultations of Demours, in the person of one who had contemplated the eclipse of 1764, through a forty-inch telescope. And Larrey mentions a soldier who employed a bit of dull glass, with a clear point in the centre, for the same purpose, with a similar result. Demours also speaks of a literary person, riding in a place much exposed to the sun's light, in whom the disease announced itself by luminous globes, which attached themselves to every object he looked at. Travers describes the case of a student who wrote late; also of a captain greatly addicted to astronomical observations, who nevertheless recovered, by bleeding, blistering, and mercury. The influence of prolonged attention to minute objects, as practised by compositors, engravers, watchmakers, milliners, and others, appears to have been exaggerated. I met with an example, however, in a young engraver on copper, in which the complaint, if not induced, was certainly hastened by his occupation. He complained particularly of the injurious effect resulting from the glare of reflected light on the bright surface of the metal. Sedentary, and otherwise unhealthy occupations, as Jacob well observes, tend to injure the eye indirectly, by the impairment of other organs.

The occasional production of amaurosis, from narcotic and other poisons, as belladonna, stramonium, hyosciamus, which dilate the pupil, prussic acid and opium, appears undoubted. Yet it seems groundless, as Beer has done, to ascribe the disease to abuse of bitters, when we consider the immense quantity of hops and quassia, not to speak of coffee, which Germans and English consume in their beer. The Africans refer blindness to certain farinaceous plants; they consume cola, however, a bitter bean, in immense quantities with impunity. Christison enumerates extreme contraction of the pupil among the poisonous effects of opium. Demours avers the production of amaurosis owing to a *poudre purgative mal préparée*; also from the ingestion of verdegriis. The former speaks of two soldiers who experienced insensible and temporarily-dilated pupils after eating the shoots of narcotico-acrid plants: and similar narratives, relative to young and old, are scattered by

hundreds, through the periodicals. The effects of alcohol are well known. Mackenzie mentions that the great majority of amaurotic patients, in this case men of course, who had consulted him for twelve years, had been in the habit of chewing and smoking tobacco to excess. Amaurosis has been ascribed to lumbrici in children: one of Demours' patients evacuated worms. Derangement of the digestive organs is esteemed a frequent source by German ophthalmologists; and, from the recorded success of emetics and purgatives, would seem an occasional cause. General or cerebral plethora is commonly considered influential. In the majority of my own cases, a sense of fulness, increased by stooping, accompanied by scotomata and sparks before the eyes, subsisted. The concomitance of lost or impaired vision, with apoplexy, paralysis, and disease, whether direct or reflected, of the brain and spinal marrow, is matter of pathological notoriety. Violent physical efforts, forced marches, suppressed loeial, hemorrhoidal, and menstrual discharge, the drying up of ulcers, and retropulsion of cutaneous eruptions, have, severally, furnished instances. The effects of premature or excessive venery—*di masturbazione e di venere prematura*, as Searpa states, loss of blood, low diet, and general debility, are all occasional sources. Impaired vision, from unduly prolonged lactation, has come more than once under my notice, as well as that of others. I witnessed temporary impairment of vision from the application of a cupping-glass to one temple. Smucker describes impermanent amaurosis ensuing during pregnancy, or the puerperal period. Beer relates an instance in which blindness came on thus, in the women of one family through three generations. Terror, according to Demours—anger, according to Richter, have both been known to induce cecity. Amaurosis, unfortunately, is often congenital; much oftener indeed than cataract. Gibson, in the seventh volume of the Edinburgh Medical and Surgical Journal, states having seen five or six children, the offspring of two sisters, who were alike idiotic, amaurotic, and labouring under cataract. Monteith mentions a family, the three eldest of whom were born amaurotic; and Lawrence speaks of another of seven, three of whom were born blind; while in another, the dark-eyed children early became so. In fact, young persons sometimes become amaurotic, in whom no perceptible structural change in the organ of vision is apparent. The preponderance of the disease in dark-eyed persons is truly singular. For every grey or blue eye affected, according to Beer—and he practised among a light-haired people, there were twenty-five or thirty brown or black. Of all the instances of the disorder which I met with, I do not recollect a single one to have occurred in a person of other than dark hair and complexion; though certainly mere visus muscarum is not confined to such. It would be curious to determine what influence this seemingly inscrutable peculiarity has over the statistics of the disease in warm climates: I saw few blind persons on the coast of Africa. Organic causes, even, would seem less influential, unless, indeed, we suppose dark eyes more prone to structural disease, than the mere colour of the eye.

The prognosis in amaurosis varies with accompanying and precursory complications. If loss of vision, for instance, ensue, as I have had occasion to witness, from malignant disease at the base of the orbit, the prognosis will obviously be of the worst description. Organic disease,

in fact, is always an unfavourable attendant. Recent cases are almost the only ones in which much, if any advantage, is to be anticipated from remedial measures. I have, indeed, when the sight of one eye was gone, or so far gone that light and darkness alone could be indistinguished, and that of the other impaired, been able to arrest the further development of the disease. In a few rare instances, vision, after being lost for years, returns spontaneously; but this is an occurrence on which we cannot calculate. The prognosis is probably worse in dark-complexioned persons; and obviously so in those in whom the disease is constitutional or hereditary. Lawrence mentions that he had two amaurotic twin sisters under his care in the London Ophthalmic Infirmary, alike in complexion, hair, eyes, and in the symptoms of the complaint. Amaurosis that comes on suddenly, is, in the great majority of cases, to be esteemed much more curable than when the disorder proceeds by slow insidious steps. As to the diagnosis, malingerers are well aware that amaurosis necessarily presents no apparent change in the structure of the eye, and simulate it accordingly. Few such will bear the rapid approach of a feather without wincing; the eyes rarely present the dull unmeaning glare of amaurosis, and the pupils expand on the approach of light. It must be borne in mind, however, that the iris of the diseased eye will often contract so long as the sound one remains uncovered. The internal coats should be carefully inspected with a lens; the examination will be facilitated, if necessary, by the employment of belladonna. In this way, retinitis, which indeed appears to be a frequent precursor, not to speak of iritis and glaucoma, will readily be detected. Belladonna and hyosciamus, the effects of the former lasting six, of the latter twenty-four hours, have been purposely employed; a fact of which the practitioner should be aware, to suspend the motions of the iris and counterfeit disease. It is with incipient cataract that amaurosis is frequently confounded; an error which it is of much importance to avoid, since to treat amaurosis successfully, we cannot begin too early. In amaurosis, says Guthrie, when the action of the iris and pupil remains, no opacity that can be mistaken for cataract is seen behind the pupil; furthermore, the cloudiness that obtains in amaurosis is distant from the iris, and mostly attended by a pale greenish or horn colour, in place of the natural jet-black hue of the lens and vitreous humour. Fully-formed cataract is hardly to be mistaken for amaurosis. Both, however, so far as the patient's sensations are concerned, may be attended with spots, clouds, or thin gauze, intervening, as it were, between the object and the eye. These appearances, according to Mackenzie, are more frequent in cataract, in which, moreover, the blindness is less complete. *Muscae volitantes*, indeed, commonly irremovable, may subsist throughout life, irrespective of either amaurosis or cataract. In the latter affection, the lens becomes opaque, hence the cloudiness is more perceptible when the patient looks in a straightforward direction than laterally; a circumstance, however, which may also obtain in amaurosis. The cataractic patient sees best with a moderate quantity of light, while evidence of cerebral disease is usually absent.

The treatment of amaurosis, unhappily, is anything but satisfactory. Much, of course, will depend on the nature of the exciting cause, which, when possible, is to be set aside or allayed. I have too often been

unable to effect restoration of vision, or even mitigation of the disease. When the head was implicated, I have certainly derived advantage from venesection, cupping on the nape, crescentic blisters on the temples, purgatives, abstinence from animal food and fermented liquors, and an absolute prohibition as to reading, or exercising the eyes on minute objects. In cases wherein issues in the arm and setons in the neck had been employed, the constitution seemed to become early habituated to their influence. The shower-bath, in some instances, has proved useful; and I feel clear as to having occasionally arrested the progress of amaurosis, as dependant on cerebral disease and organic change. As oblique vision is apt to mark the incipient disease, Mr. Hey states, that the same symptom often accompanies returning vision in the event of recovery. Should amaurosis ensue in connexion with the suppression of an habitual discharge, natural or otherwise, prompt measures should be taken to restore it. Schmucker informs us, that soldiers who lose their sight after forced marches in hot weather, very commonly have it restored by being bled and taking an emetic the next day. The predilection which this writer and Richter entertain for emetics may be conceded to in recent cases; in chronic ones, however, much cannot be expected from these perturbing remedies. If we entertain any suspicion of worms, in children's cases more especially, it will be proper to administer anthelmintics. I have met with oblique vision and dilated pupils in children, as arising from cerebral disease, and which readily yielded to leeches, revulsives, and aperients. Amaurosis consequent on debility, loss of blood, and over-prolonged lactation, demands an opposite line of treatment, as meat and wine, quinine, and other adjuvants. The influence of specific remedies, sternutatories, iodine, turpentine, and the like, is questionable. Ware recommends a mercurial snuff, composed of one grain of turbeth mineral, in twenty of powdered liquorice, two or three times a day. Mercury has strong suffrages in its behalf. It appears, in many cases, as Mackenzie observes, to promote the absorption of effusions, and even of morbid growths within the cranium. Travers affirms, that he has too often been witness of its power, not to entertain a higher opinion of its efficacy than of any other article in the materia medica; and Lawrence affirms, that after a fair trial of antiphlogistics and mercury, he knows of no other means of effecting essential good. He mentions a young woman who came to the Ophthalmic Infirmary labouring under active congestion and considerable pain in the head, florid countenance, turgid veins, and amaurosis, in one eye, of a few days' standing. Copious bleeding, cupping at the nape, low diet, and purgatives, produced no improvement, till salivation, followed by perfect recovery, was induced by mercury. In a second case, imperfect amaurosis with plethora subsisted in a girl of fifteen. She was actively bled and purged; in three weeks the menses appeared for the first time, and she recovered. The next was a plethoric subject, who had lived well. He could not see large print with the left eye, with the right he could distinguish small; but, in a minute or two, words and lines ran together, and the stripes of a pattern became confused. Twenty ounces were taken from the arm; the patient was purged with calomel and jalap, and directed to leave off animal food and fermented liquors. Next day he was cupped to the amount of twenty ounces in the nape, while two grains of calomel, and a quarter

of a grain of opium, were administered every six hours. In a week, the month having become very sore, and the breath fetid, the irides began to act naturally, and he could see equally well with both eyes. A girl of seven, with florid complexion, blue eyes, and fat, had become blind in the right eye, without any obvious cause or marked pain. Four leeches were applied to each temple, with calomel and jalap every second day; subsequently, five grains night and morning of mercury with chalk, occasionally a dose of rhubarb, were exhibited. In three weeks, vision was restored, and the child discharged with instructions as to her mode of living. Amaurosis was complete in the right eye, imperfect in the left, of a girl of fourteen. She was freely cupped and leeches; which, with aperients, mercury, and the usual restrictions as to food, sufficed for the complete restoration of both eyes in a month. An engraver who worked hard, chiefly using the right eye, could only see the upper part of the object, the lower being hazy, with throbbing, weight, and uneasiness over the brow and eyelid. Copious repeated cupping in the temples and nape, low diet, calomel and mercurial inunction, so as to render the mouth very sore, sufficed in a few weeks to ensure perfect recovery. In the seventh case, the captain of a merchantman, who had lived freely, and could not distinguish capital letters, was bled, purged, and mercurialized with success. Diplopia, in some directions, and imperfect amaurosis, ensued in a muscular man of fifty-five, who could not read ordinary print. Here venesection to twenty ounces, cupping to sixteen, five grains of blue pill thrice a day, with abstinence, effected a cure. In the ensuing, a fair-complexioned lady of forty-four could see nothing with the right eye, but perceived large objects with the left. She was cupped to the amount of fourteen ounces on the nape, calomel and opium, followed by five grains of hydrargum cum creta three times a day. As aperients did not act, it was found that the rectum was blocked up with hardened feces, which, being mechanically removed, copious evacuations, followed by complete recovery, ensued. In the next and last, that of a young lady, impaired vision, with presbyopia, was similarly benefited by mild antiphlogistics and mercurials. The foregoing, Mr. Lawrence refers to inflamed retina and disordered cerebral circulation; and admits, that, in other forms of the disease, and when the pupils are contracted, of which he gives two examples, the same favourable results cannot be anticipated.

XII—OTITIS, INFLAMMATION OF THE EAR.

OTITIS may affect the external or internal ear, or it may implicate both. Internal inflammation, however, is much more serious than external. The latter commonly owing to cold, at other times arises from the presence of foreign bodies, peas, cherry-stones, seeds, or beads. Corn has been known to germinate; and Sabatier has witnessed death from the introduction of a pellet of paper. Hildanus mentions epilepsy and other anomalous symptoms, owing to a bit of glass. The accidental admission of insects or their larvæ, is mentioned by Morgagni, Valsalva, and others. The well-known, and innocuous insect, the earwig, is erroneously supposed to infest the ear. I have met with otitis

oftenest in scrofulous subjects, whom I esteem most liable to the disease. It commences with a sense of fulness, as if something blocked up the passage; considerable soreness, augmented on using the lower jaw; sometimes darting pains, and a combination of hissing, buzzing sounds, which patients compare to the noise of the tide. One lady complained as if a stone were at the bottom of the ear, which felt, she said, as if it did not belong to her. When the meatus is looked into, it appears red, tense, and swollen; sometimes I have seen small boils in the passage. If the disease do not end in resolution, at the end of one, two, or three weeks, a purulent, or sero-purulent discharge begins to issue from the outlet. This may continue for days or weeks, and then lapse into a caseous or augmented ceruminous exudation. Very often inflammation declines, and the patient, on fresh exposure, incurs a renewed attack. When the discharge becomes chronic, which it is very apt to do, it receives the designation of otorrhœa. Lallemand speaks of otorrhœa alternating with rheumatism, catarrh of the bladder, leucorrhœa, and even gonorrhœa. Independent of these rare occurrences, small bodies, termed polypi, arise on the margin of, or in connexion with the drum, the irritation from which is usually thought to perpetuate the discharge. Sometimes not merely the meatus, but the fibro-cartilaginous tissue of the conduit, is implicated, with vast pain and tension, suspension of hearing on the affected side, red, swollen, and vultuous countenance. In the event of abscess, the matter probably breaks into the passage; but I have known it to do so in a lateral direction, as regards the outlet. In some cases, the caliber of the conduit becomes so much lessened, as to form a serious impediment to the discharge, which may then accumulate, inducing painful pressure on the tympanum. Delirium rarely ensues unless in very impressionable subjects, and then, for the most part, when inflammation is caused by the presence of a foreign body, or has proceeded to the inner ear.

Inflammation of the internal ear, by much the more serious disorder of the two, may commence primarily in this situation; or, otherwise, as more commonly happens, extend from the outer ear. As suppuration is a frequent result of internal otitis, and as the matter, unless there be perforation of the drum, mastoid process, or overt Eustachian tube, cannot readily escape, it may well be supposed that the resulting distress is very great. Death, however, often ensues, inflammation affecting the brain and membranes; or pus, owing to destruction of a portion of the petrous portion of the temporal bone, obtains direct admission. The symptoms of internal otitis are general fever, intense pain, tension; and vertigo, deafness on the affected side, ringing noises in the head, fulness in the cavity of the tympanum, more especially on blowing the nose; delirium, sometimes convulsions, and, occasionally, death. Internal otitis, however, may subsist in a comparatively mild form, and repeated attacks may ensue without entailing any immediate ill consequences. Once the brain, however, is implicated, the danger is great, often irremediable. A patient labouring under chronic internal otitis is never sure that acute disease will not supervene, and the termination of this, no one beforehand can declare. I occasionally attend three or four individuals who labour under chronic, purulent, sometimes sanious bloody otorrhœa, some of whom have incurred incipient cerebral inflammation. I recollect a poor man in whom I

twice stayed the course of acute internal otitis; on a third accession, however, it extended to the brain, with burning skin, hard quick pulse, delirium, and death. Here there had been a fistulous opening behind the ear. After death in such cases, effusion, meningeal thickening, and cerebral softening, will be obvious. Sometimes phlebitis of the sinuses ensues; and Bruce, in the Medical Gazette for January 1841, mentions having detected pus therein. Otorrhœa is apt to become chronic with extension of disease to the cochlea, fenestrum, vestibule, and other portions of the inner ear, with loss of the ossicula. Tod describes a case in which the entire labyrinth, and indeed the whole of the petrous portion of the temporal bone, had been discharged with eventual recovery, in a young child. Deafness, or greatly-impaired hearing, usually ensues in these cases; but we find in the London Medical and Physical Journal a case recorded, in which a child of four is said to have lost the malleus, stapes, and incus in succession, and yet retained the sense of hearing. A fetid discharge may subsist long years, if the patient be careful of himself, without entailing very much inconvenience: an intelligent medical friend of mine, however, at last sunk from continued irritation and extension of the caries. Matter commonly escapes through the external meatus, owing to destruction of the tympanum; it may, however, descend through the Eustachian tube into the fauces, perchance inducing ambiguity in the diagnosis when coughed or spat up, as well as evacuated by the nostril; or it may perforate, so to speak, the mastoid process, and thence, as I have seen examples, escape by the fistulous opening. Itard thought that purulent evacuation by the Eustachian tube was always coincident with discharge from the external ear, but Lallemand cites two examples to the contrary.

Cases in which internal otitis causes death, by change of structure in the encephalon, are arranged by Bérard into two orders; those, namely, in which pus is discovered in the brain, with destruction of the petrous portion and corresponding dura mater; and those in which, along with cerebral abscess, we discover no lesion, whether of the temporal bone or dura mater. This last, by some, is esteemed a species of metastasis. Lallemand is of opinion, that inflammation of the brain is never primary, but secondary; at most, a morbid concomitance. Burne very properly warns us not to overlook disease of the ear in the preponderance of the cerebral affection; a mistake, however, which has been committed ere now, and into which, seeing that the patient may be unable to describe his situation, it is very easy to fall. In a case by Möglin there was paralysis of the cheek, an occurrence sufficiently explicable by a lesion of the facial nerve as it passes through the petrous portion. There is sometimes swelling in the parotid region and neck, more especially, as Bérard has observed, in those cases in which inflammation comes from the throat.

The ear is liable to certain derangements, which may be the result of inflammation commencing in, or extending to, the inner ear, or otherwise. Otagia is not an uncommon occurrence, particularly in young persons. One writer esteems it as indicative of inflammatory congestion of the tympanum; but the rapidity with which it comes and goes is opposed to this conjecture. We cannot well have otitis, without more or less otalgia; but we may have otalgia without otitis. The causes of this neuralgia are not obvious. I have known it ensue in children

in a moment, causing bitter crying for half an hour or more, when it would as suddenly abate, either spontaneously, or lulled by the warm applications to which it is customary to resort. Itard mentions a small indolent tumour which awakened pain in the ear whenever it was pressed on; and Fauchard relates an instance of otalgia and hemicrania from a carious tooth, subsiding when this was extracted. I have myself known acute pain from ceruminous accumulations. In every case the meatus should be carefully examined. Wandering insects are speedily dislodged or destroyed by introducing a little oil; in other respects, the ill effects which have been known to accrue from laudanum, suggests the preferable employment of warm applications. Perforation of the tympanum is one of the results of otitis, but it appears occasionally congenital. Smokers often expel smoke by the ear: and I have known air to escape, spontaneously, with a hissing sound, from the internal ear through the drum. Mere tympanitic perforation, therefore, can hardly be esteemed an inevitable source of deafness. In certain cases, indeed, artificial openings in this membrane, have proved the means of restoring hearing. Hardened pellets of wax may so block up the external meatus, as greatly to impair the capacity of distinguishing sounds; and I have known a couple or three instances in which deafness persisted till the accumulation was got rid of by means of oil dropped into the ear, followed by copious tepid injections. Persons labouring under deficient or absent ceruminous secretion, are sometimes under the impression that their deafness is owing to accumulation; the latter, however, has sometimes been productive of serious results, since Ribes and Chaussier relate a case in the thirty-eighth volume of the *Dictionnaire des Sciences Médicales*, in which hardened wax not only forced itself through the tympanum, but had separated the handle of the malleus from its head. Paralysis of the auditory nerve is probably an occasional source of deafness. In a few such cases, loud noises, for the time being, have been known to stimulate the nerve into healthy action. Sometimes an effort, on the part of the patient, seems capable, to a certain extent, of developing the deficient sense. Congenital absence of the ossicula has occurred, it is asserted, without loss of hearing. Some families inherit an hereditary tendency to deafness, occasionally congenital; and I have known one wherein several members became so at an early period. Deafness has been ascribed to healing of syphilitic ulcers and sloughing sores, as occurring in angina maligna. Deafness from enlarged tonsils and descent of nasal polypi closing the outlet of the Eustachian tube, has been occasionally noticed. In one patient, a porter, deafness, on one side, was owing to chronic inflammation of one tonsil; this being subdued by scarifications and other means, the hearing was improved.

In all cases of deafness, it is right to ascertain, by actual inspection, the condition of the parts in the vicinity of the Eustachian outlet. Local inflammatory affections, ulcers, and enlarged tonsils, are often advantageously treated by means of the nitrate of silver. Deafness has been alleged to be owing to mucus obstructing the Eustachian tube, and removed by the simple procedure of shutting the mouth and nose, then expiring strongly. Permanent obstruction has been proposed to be remedied by catheterism of the Eustachian tube, first performed on himself by a postmaster in Versailles, 1724. An oiled sound, with one curve, is introduced, beak downwards, about two inches into the nasal

fossa, the head of the patient resting on the breast of an assistant, the operator, as Mr. Neill advises, standing behind. This done, the beak is rotated upwards and inwards, and, if the operation prove successful, it will lodge in the outlet of the tube. It is now thrust forward, after which a syringe is adapted to the handle of the instrument. This operation, as Bérard observes, demands not merely manual dexterity and knowledge of the parts, but practice, to perform it with success. It is also to be presumed that it would be ineligible, in ulceration or inflammation of the outlet, also in case of organic obstructions, which can only be determined by trial of the tube. A German practitioner, Cramer, has adapted an air-press or douche to the extremity of the silver sound or catheter, by which means air, previously condensed in a suitable receptacle, is forced through the Eustachian tube into the inner ear. This operation, I conceive, in careful hands, may, in certain cases, be resorted to with relief. A recent casualty, in the hands of a London practitioner, appeared to be owing to accidental displacement of the catheter, the patient being left alone, and the introduction of a current of air, with consequent fatal asphyxia, into the larynx. A fortunate few have recovered hearing, after catheterism of the Eustachian tube, while, in the majority, the process has proved ineffective. When it fails, perforation of the drum, by means of a small canula and trocar, may, perhaps, be resorted to. Deleau performed it five and twenty times, with variable and rather inferior success. In four cases by Itard, the first only did well; in one other, indeed, hearing returned, but was almost immediately lost. Three out of four of Astley Cooper's cases, however, succeeded perfectly; neither catgut nor any other means being employed to hinder the opening from closing. In some, as in a patient of Maunoir's, the restored hearing was painfully acute. Perforation of the mastoid process, by Jasser, 1776, was cast into disrepute by its fatal issue in the case of Bergen, physician to the king of Denmark, 1791. In a memoir by Dezeimeris, in *L'expérience*, out of fourteen cases, we find that three were not successful, two imperfectly, while nine were completely so. First, the integuments are divided, then the periosteum, when a trocar is thrust in, three lines or so, a little anteriorly, from the base of the mastoid prominence. Subsequently, a small syringe may be adapted to the canula, for the purpose of throwing in injections, which escape by the Eustachian tube or by the ear, if these be perforate; otherwise not, which is less favourable. Nevertheless, in a case by Löffler, the hearing was much ameliorated. Bérard, who advises us, by the introduction of catgut or otherwise, to prevent the aperture from closing too soon, mentions, by the way, from Pèrier, the case of a soldier who heard very well through the opening made by a trephine into the skull.

External otitis is mainly of importance from the chance of inflammation extending to the inner ear. It is, however, capable of inducing sleeplessness; while great distress, and repeated relapses, from premature exposure, may prolong the disease for weeks. Moderate purgation, leeches behind the ear, perhaps bleeding from the arm, warm stupes through the day, with fig, onion, or linseed-meal poultices at night, are means calculated to afford relief. Warm applications, preceded and accompanied by antiphlogistics, constitute a powerful means of resolving inflammation, and if matter perchance form, of bringing it sooner to a

head. The efficacy of leeches is great, but they should be applied in numbers, often repeated, followed by free stuping, then abundance of warm dry flannel. In one instance, in which a lady experienced two relapses from incautious exposure, I ventured to place three fine green leeches within the margin of the external meatus. They promptly gorged themselves, and fell off; the relief was immediate, and, what was still better, permanent. The bites occasioned no irritation, and little pain; but the patient was astounded at the noise made by the leeches while sucking. In this situation they certainly induced more relief than a dozen, or perhaps more, behind or before the ear. As there is great risk of fresh attacks, the patient should avoid venturing out too soon, or without several folds of flannel over the ear. Chronic otitis and otorrhœa, in no case that I have met with, subsisted, unless when the internal ear was implicated. In this case, acute internal otitis, with suppression, partial or complete, of the discharge, intense cephalalgia, delirium, and death, may, at any time, supervene. Astringent injections are alleged to have induced this disaster, but cold and excess appear the most frequent sources. Excess merely acts indirectly by increasing general plethora, and local turgor. Acute internal otitis, from whatever cause, demands early, prompt, efficient treatment. Venesection, perhaps, cupping on the nape, leeches to the mastoid process, low diet, with aperients, tartarized antimony, digitalis, and stuping, must be our resort. Repeated attacks, and debility from whatever cause, however, demand the very qualified employment of these measures. When the disease has gone the length of causing caries and perforation of the temporal bone, effusion, and perhaps phlebitis of the sinuses, every mode of treatment is too apt to fail. Not long since, a plethoric lad, of strumous habit, who had laboured under chronic otorrhœa of the inner ear for some years, was attacked by acute internal otitis, with intense cephalalgia, hot skin, and quick pulse. Active measures were resorted to; the local pain and fever disappeared, and perfect consciousness returned, but convulsions not the less ensued, and the patient died. When patient and practitioner, however, are on the watch, the disease, caries and effusion being absent, may often, as I have witnessed, be arrested at its onset. The brain, it is to be observed, may be sympathetically affected, without actual inflammation; and we are justly cautioned by Burne to avoid unnecessary depletion. He mentions a case in which he discovered and opened a large abscess behind the ear; the patient, however, sank, as he avers, from prior bloodletting practised under the erroneous diagnosis of cerebral inflammation. In one instance, so far as I know without a parallel, acute inflammation supervened in a stable-helper, who had long laboured under chronic internal otitis. He lay comatose, with insensible pupils, small rapid pulse, and apparently dying. I had, indeed, quite given him up; when, lo, erysipelas of the face and scalp ensued, creating a powerful revulsion, and ending in recovery. In cases in which endo-otitis proves consequent on suppression of the discharge, warm applications are urgently indicated; Itard recommends a loaf hot from the oven. In such, I have witnessed death, preceded by delirium and raging fever. When matter forms behind the tympanum, and does not escape by the tube of Eustachius, or when the drum does not give way, the latter has several times been successfully perforated by Itard. In chronic otorrhœa, the

parts, every morning, should be carefully syringed, and the outlet kept habitually plugged with cotton or wool, duly renewed. Astringent injections are rarely advisable, and not always safe. When the discharge was fetid, sanguinolent, and profuse, I have tried such, weak, however, and tepid, with advantage. But from none have I derived so much good as from largely-diluted port wine; by means of which the discharge was diminished in quantity and altered in quality, while pain in the ear was allayed, and hearing improved. Sometimes, moderate counterirritation behind the ear is useful. Fungous growths or polypi are best treated by applying the nitrate of silver in substance, which may be safely and conveniently done. In all cases, the patient should be attentive to diet and regimen, as well as avoid the undue influence of cold and moisture. As strumous children and others, the principal subjects of otorrhœa, are often benefited by sea-bathing, they should be directed to press the palm of the hand on the ear when they dip under water.

XIII—ŒZENA, LUPUS.

DURING the course of common catarrh, fevers, and the like, the smell is often greatly impaired, if not, for the time, completely lost, anosmia. In certain forms of inflammation, cynanche more especially, the nostrils, may be somewhat implicated, rhinitis. The voice undergoes a modification from nasal polypi, somewhat like what ensues in fissure of the palate, or the snuffling in syphilis. Œzena, or stinking nose, in French *punais* or *puant nez*, implies ulceration or other alterations in the nasal passages; occasionally, however, catarrhal discharges, as in the case of other excretions, take on a fetid character. Lagneau ascribes some influence to undue narrowing of the outlet; and mentions that he and Mérat, oftener than once, completely remedied œzena by causing patients to inspire, as it were, cold or tepid water through the nostrils. I was once asked to look at a healthy child with a nasty fetid mucous discharge, that I could refer to no obvious cause. Sometime after, however, a bit of rag which the child had thrust out of sight, protruded, and being pulled away, the complaint ceased. Buttons, beads, and seeds, are sometimes introduced into the nostrils. The larvæ of insects even, though far less frequently than in the brute, have been known to gain admission into the frontal sinuses. In syphilitic œzena, the discharge is ichorous, purulent, sometimes greenish, like water in which peas have been boiled. When scabs are picked off, small quantities of blood ex-hale, accompanied, as Lagneau informs us, by minute portions of necrosed bone. Syphilitic ulcers of the nasal passages, as may be supposed, are never primitive. They are said to commence with all the characters of ordinary coryza; the patient's nostrils are stuffed, and he finds he cannot breathe well through them. As the disease proceeds, caries is apt to attack the turbinated bones, vomer, and ethmoid, the septum is destroyed, and the nose collapses. Cazenave of Bordeaux, in a paragraph on the subject, mentions œzena with necrosis, and destruction of the nasal bones consequent on abuse of mercury for supposed lues. In another case, in addition to œzena and caries, there was

perforation of the palatine arch. Sarsaparilla and mercury, according to Lagneau, Cullerier, and Ratier, are the remedies to be made use of. The propriety of mercury, however, I should feel inclined to question. Warm baths, inhalation of the vapour of aromatic infusions, with injections consisting of a teaspoonful of the chloride of lime in half a pint of water, are alike advisable in syphilitic and non-syphilitic œzena. When ulcers can be reached, they may be dressed with opiated ointments, or, preferably, touched with the nitrate of silver.

Lupus, which has been divided into *lupus serpiginosus*, *exedens*, *non-exedens*, and *vorax*, may subsist for years, and, as Rayer observes, without much impairing the general health. Sometimes only the point of the nose is removed, at others the whole nose and septum are destroyed; the disease appearing in the form of livid, indolent, voluminous tubercles, seated principally on the nose and face, succeeded by foul ichorous ulcers covered with adherent brownish scabs, which, falling off, display fresh destruction, or by deep-seated alterations of the dermis, without wound or ulceration, followed by indelible cicatrices. Lupus may be primary in the nose, or extend to it from other organs. When seated in the former, the mucous lining is commonly affected at the same time. Intercurrent erysipelas is said to be frequently observed, and occasionally tends to the resolution of the complaint. The causes of the disease are little known. *Noli me tangere*, which some esteem identical with lupus, but which Cazenave looks upon as an essentially cancerous affection, commences with a solitary tubercle; whereas, in lupus, there are usually several. In my opinion, however, these happily rare diseases, if distinct, are seldom discriminated. In tubercular syphilis, the sores are deep, copper-coloured, and favourably modified by mercury. There are commonly other concomitant venereal affections. In Grecian elephantiasis, the skin is of a tawny hue, the tubercles are small and knotty, with swellings that deform the face. Biett speaks well of twenty or thirty grains of the protiodide or deutiodide of mercury in an ounce of lard, as a local application in lupus; subsequently, repeated limited cauterization with lunar caustic, butter of antimony, arsenic, the acidulated nitrate of mercury, chloride of zinc, lastly, equal parts of caustic potash, and quick lime. In every case, sponge tents should be introduced into the nostrils. The long duration and inveteracy of this disorder may be inferred from the circumstance of a girl, under M. Biett, who was only cured after years of treatment, and upwards of fifty cauterizations. *Noli me tangere*, so named, is, if possible, more obstinate and intractable than lupus. I witnessed, in St. Louis, the application of red precipitate mixed, on a bit of slate, with saliva. In other cases that I have seen, every imaginable application proved alike unavailing.

CLASS VIII.

DISEASES OF THE NERVOUS SYSTEM.

I—PHRENITIS, MENINGITIS.

INFLAMMATION of the brain and meninges may exist separately or conjointly; it is, however, more frequently united than otherwise. The arachnoid and pia mater are so apt to be conjointly affected, that the term arachnitis, or more properly meningitis, may be assumed as significant of both. Inflammation may implicate the superior hemispheres, base of the brain, or membranes lining the ventricles. As the arachnoid is a shut sac, or nearly so, covering the dura mater, reflected over the pia mater, and dipping into the ventricles, so inflammation may affect one or more portions to the exclusion of others. Nothing, however, is more common than to witness adhesion of opposite surfaces, the result of prior inflammation. Symptoms indicative of inflammation of the surface, centres, or base, severally, are any thing but well determined; in fact, cephalalgia and delirium may subsist apart from inflammation, or prove the result of anemia or hysteria; lastly, extensive cerebral disorganization may be nearly or wholly unsuspected before death. Cephalalgia, however, as Gendrin remarks in the notes to his translation of Abercrombie's work on the brain, is perhaps the most characteristic feature of encephalic disease. Pain in the forehead, temples, or occiput, may indeed arise from other sources; but when one temple only, one parietal region, or a part of the frontal, and that permanently, is affected, solicitude is justly awakened in the breast of the practitioner. Fever, headache, stupor, and convulsions, are the most prominent symptoms. Young subjects oftener, perhaps, display convulsive and spasmodic affections; whereas, in adults, the intellect is more apt to be deranged. When we wish, however, as Gendrin justly observes, to go beyond the general signs of cerebral inflammation—to point out whether the membranes or pulp of the brain be affected, and the particular region implicated, we find it difficult or impossible, so numerous are the exceptions, to establish an exact diagnosis. One half of Abercrombie's cases were preceded by frequent epistaxis, constant, or often-recurring cephalalgia, nausea, vomiting, heaviness in the eyes, pain in the ears, and feverishness; in the other half, premonitory signs were nearly absent; serious symptoms, greatly aggravated towards evening, arising at once. Rapid aggravation, however, was also witnessed when prodromata were present. The age of the patient appeared to have more influence than the seat of the disorder. In infants, moderate fever might be seen to attend convulsions, the pulse rarely becoming rapid

till these were moderated; cephalalgia, acute fever, and prostration, were more obvious in adults; nausea and vomiting, however, occasionally ensued during the onset, in both. If meningitis ensue with violent convulsions—stupor, prostration, and perhaps coma, are proportionate; but if the convulsions be moderate, of short duration, and not followed by stupor and prostration—cephalgia and delirium will still be observable. When meningitis commences with cephalalgia—fever, prostration, and delirium, perhaps, follow, or short convulsive movements alternate with coma. Delirium may be bounded by simple loquacity or wandering; and, in adults more especially, convulsions may be limited to spasmodic contractions of the muscles of the face and eyes. In children, we frequently have those piercing shrieks or cries to which Coindet would apply the term *hydrocephalic*. Patients often convey the hand automatically to the head, as if to thrust some innumbrance aside. The pupils are dilated and insensible, or partly so, to the action of light. Sometimes one pupil only is contracted. The pulse, previously quick, is apt to become slow and irregular during coma; I have seen it not forty in a child. When coma is considerable, convulsions are slight or infrequent, and conversely. In coma, however, as Gendrin remarks, there may be tonic, as opposed to clonic or convulsive spasms, of the eyes and neck. Prostration and insensibility are subsequently apt to ensue in both; but patients will live longer comatose than convulsed. Cerebral congestion at the onset is sometimes so considerable as to lend the aspect of apoplexy. As for vomiting, delirium, tetanic throwing back of the head, laceration, squinting, aphonia, deafness, sometimes painfully-acute hearing, they vary according to the seat and intensity of the disease. Structural changes, however, bear no constant ratio to the symptoms. In one case of convulsions with delirium, we shall find meningitis with suppuration; whereas, in others, with symptoms alike, we shall only discover more or less injection of the pia mater, and slight opacity of the arachnoid. In profound coma, again, where copious lesions might be anticipated, the changes perhaps are of the same unimportant character. Gendrin, however, wishes to establish the general rule, that when there is merely restlessness, sleeplessness, convulsions, cephalalgia, and moderate cerebral congestion, with the attendant exhaustion, we should only expect increased vascularity of the brain and pia mater, with arachnitis in its first stage. If, on the other hand, there should be considerable congestion of the encephalon, somnolence, stupor, and coma, we are to look for copious, serous, bloody, or purulent effusion—whether on the surface or in the ventricles.

The dura mater, traumatic cases and caries excepted, is rarely or never inflamed. Abercrombie speaks of but one instance, Fizeau of another. In the first, the bones were healthy, but the pia mater and arachnoid were diseased; in the second, there was caries of the frontal bone. Were the fibrous membranes consentaneously affected, as commonly alleged in rheumatism, the dura mater, subject in other respects to fibrous, fungoid, and bloody tumours, would be more frequently implicated. The lining membrane of the lateral sinuses is sometimes inflamed while pus is eliminated in the cavity. This affection, adverted to by Abercrombie, Tonnollé, and others, has been esteemed a variety of phlebitis. Inflammation of the arachnoid, pia mater, and cerebral substance, frequently concurs; nor have we any certain or even approxi-

mative means of ascertaining when they take place separately or together. The same cerebral symptoms, says Guersent, are often met with when the pathological alterations are very different, or when none even are appreciable. Some have supposed that delirium was the peculiar characteristic of meningitis, and contractions in the limbs, of inflammation and softening of the cerebral substance. While some facts support, others are opposed to this view; in truth, softening, and abscess of the medullary portions, may occur without any thing of the kind. The arachnoid and pia mater, though anatomically distinct, are nevertheless, from their numerous vascular connexions, pathologically identified. The arachnoid may be regarded as the exhalent surface; or, as Ribes and Blainville have it, the epidermis of the pia mater. Guersent establishes a marked difference between ordinary meningitis, and that which he has termed tuberculous, and which he identifies with hydrocephalus, or water on the brain. Scrofulous meningitis, often, doubtless, accelerated by cold, gastro-intestinal, and dental irritation, begins in a latent, insidious manner; whereas, simple meningitis is much more marked and decided. Both ensue with vomiting, cephalalgia, and constipation; but the cephalalgia in simple, does not evince the exacerbations, which give rise to the peculiar cry which we witness in strumous meningitis. Here we have permanently dilated pupils in the third stage, dull cornea, injected conjunctiva, and motions bordering on catalepsy; whereas, in the other, there are merely somnolence, subsultus, convulsive motions, and cephalalgia. The foregoing writer, however, admits the obscurity of the diagnosis; and I have seen all the phenomena ascribed to tuberculous meningitis, in which, from recovery of the patient, the presumption was that local tuberculization had not ensued. In addition to cephalalgia, Foville dwells on the frequency of obstinate constipation, as one of the earlier symptoms of meningitis. The decubitus of the patient is peculiar, the legs and arms being contracted with the head sunk between. In some, there are convulsive motions of the eyes and eyelids, with alternate relaxation and extension of the masseters, simulating mastication: I have witnessed the hand spasmodically sunk in the direction of the genitals; while, in others, the jaws were clenched, and the eyelids, which patients, nevertheless, would not permit to be opened, contracted with a sort of grin, even a few hours before death. Not to speak of cerebral softening, serous, or purulent effusion, meningitis may terminate in resolution. The acute, also, may lapse into the chronic disease, of which anon.

The present state of our knowledge, observes Abercrombie, does not enable us to say with confidence, what symptoms indicate inflammation of the substance, what, inflammation of the membranes of the brain. Calmeil is of opinion, not merely that the symptoms are analogous, but so far as meningitis and diffuse encephalitis are concerned, the diseases are identical. Foville avers the connexion of deep-seated encephalitis with convulsions, spasms, and numbness—but when confirmed softening ensues, paralysis. The first of these writers divides cerebritis into five forms; the first characterized by fever, headache, watchfulness, impatience of light, suffusion of the eyes and maniacal delirium, often occurring in the course of fevers, injuries of the head, abuse of strong drink, and solar exposure. The second, which he would connect with cerebral softening or suppuration, excites alarm by sudden paralysis or convul-

sion, confined to one side or limb, perhaps followed by alternato headache, convulsions, and coma, which may disappear for several days; lastly, death. The third, the ordinary meningitis of childhood, is marked by rigors, perhaps vomiting, languor, pcevisshness, acute pain in the head, flushed countenance, contracted pupils, impatience of light, starting, frightful dreams, stridor of the teeth, loose or obstinate bowels; after some days, slight delirium or coma, with squinting, dilated pupil and blindness; the pulse, at first variable or alarmingly slow, may rise up to two hundred in the minute, coma, paralysis, and convulsions, alternating with deceitful remissions before the close, the complaint lasting a week, or it may be, a month. In the next, which is seen towards puberty and upwards, we have fever, impaired appetite, and headache, aggravated towards the eighth or tenth day, with lowered pulse, stupor, convulsions, double vision, and delusive remissions, terminating fatally in a fortnight or six weeks. Infants are languid; their complaint perhaps ascribed to teething, cold, or disordered bowels, with a pulse of sixty or seventy, about the eighth or tenth day comes to display fixed, dilated pupils, stupor, coma, squinting, and death. Some cases, Abercrombie mentions, are even more insidious, the disease running its course without the slightest headache throughout. In the next and last, there is deep-seated, perhaps local pain, without fever, the face flushed or pale, the eye natural or impatient of light, with contracted pupil, oppression, and vomiting; double vision, coma, the pulse occasionally rising, and, after a variable period, death. To the foregoing, Gendrin adds a sixth form, ushered in by a sort of sluggishness as regards the intellect, *un état de lenteur dans les fonctions des organes des sens et de l'intelligence*; the patient repeating what is asked with a bewildered air: there are sadness, weariness, and discomfort, but perhaps neither fever nor cephalalgia; sometimes, however, rigors, followed by reaction and sweating, ensue, so that the practitioner may imagine he has to deal with a case of intermittent fever; coma, possibly persisting for a fortnight, apoplexy, and paralysis before death; patients occasionally recovering, but never after coma has lasted more than four or five days. Indeed any observant practitioner might describe other forms of this variable malady. I have seen the patient, though he could be roused when loudly spoken to, dose through the greater period of the disease, dying with strabismus and tetanic spasms at the last. I have twice, if not oftener, though this be extremely rare, witnessed recovery when coma was of nearly two weeks' standing. The practitioner should be on his guard against the deceitful aspect of amendment. Abercrombie intimates that he has even seen the medical attendant dismissed, or spontaneously to take his leave, in cases wherein the pulse has fallen, coma supervening in another day. Danger, therefore, so long as the least local or general uneasiness subsists, is to be apprehended; in fact, until the patient be so far advanced as to prove beyond the risk of relapse. Some even recover sight and hearing, and lapse into coma shortly before death. Cerebral affections occasionally ensue in the course of idiopathic and eruptive fevers, inflammatory affections, and diseased kidneys; but do not here require to be further adverted to.

Meningitis is oftenest partial; when in the portion superposed over the pia mater, as well as in the pia mater itself, it has been termed cerebral; the meninx lining the dura mater, especially after outward

injury, is also liable to be inflamed, in which case the term parietal has been applied. Here the membrane, according to Foville, presents on its free surface a number of irregular reddish spots, sliding under the finger, from a line to an inch in diameter. Blood is sometimes effused under these spots, entailing pressure on the brain, and, according to Rostan, preceding local softening. Otherwise, parietal meningitis is betrayed by no specific symptoms. The writer last named, esteems meningitis of the convexity most common in adults, of the base in children. Moningitis, also, may be confined to the ventricles; some pathologists, however, deny the existence of the arachnoid in these cavities. Parent and Martinet aver that in meningitis of the base and ventricles, the intellect is less affected—that the patient replies, though slowly, to questions asked; but that he is continually somnolent, and, in a brief space, plunged in coma. In a case by Abercrombie, the disease commenced in a child of six, with costiveness, pain in the forehead, hesitation of speech, then delirium, convulsions, and death. No effusion was observable, the only mark of disease being a false membrane, about the breadth of a shilling, with corresponding cerebral hardening, the size of a large nut, on the lower surface of the right anterior lobe. In a young lady, as related by the same writer, the symptoms, except a greater proneness to coma, were much those of ordinary fever. The brain itself was healthy, but two ounces of serum subsisted in the ventricles, and a false membrane at the base, near the pons Varolii and optic nerves. In a child of eight months, fever, restlessness, squinting, convulsions, and coma, preceded death. There had been considerable prominence of the anterior fontanelle, pus and bloody serum escaping, on puncture, without relief. After death, a thick flocculent matter, mixed with pus, covered the brain. Bright and Abercrombie describe cases in which the purulent deposit was mainly confined to the ventricles. The latter adverts to meningitis of the cerebellum, otherwise rare, in a lady subject to disease in the left ear, and quotes an instance in which it occurred uncombined. Meningitis, however, with perhaps diffuse encephalitis, whether coming on after the acute disease, or wearing that aspect from the first, may present itself in the chronic form. It is associated, according to Bayle, with mania, delirium, and paralysis. Convulsions, bordering on epilepsy, affect a proportion of the subjects; the writer last named says a fourth. Out of one hundred and fifty-nine cases in the asylum at Charenton, all died, except nine; and of these five recovered, while four improved. Foville enumerates profound stupidity and a kind of paralysis of the nerves. Patients were little better than so many statues; if pushed, they walked; if raised up, they stood; if meat were put in their mouths, they swallowed it; otherwise, perfect immobility of feature. Out of six cases brought to the asylum at Rouen, one, in an old veteran, resulted from acute meningitis, induced by a blow on the head. Here, a double layer of false membrane, with more or less interposed serum, bounded by the cerebellum, and forming a sort of shut sac, extended over the surface of the brain. Chronic meningitis, however, may subsist wholly unconnected with mental impairment. Guersent, who has seen it among children, conceives—tuberculous cases, and those connected with caries of the temporal bone excepted, that it must be rare. I have met with several instances among adults. Patients complain of a sense of formication, as if insects were creeping over the

surface of the brain. In other respects, the morbid changes are the same as those already adverted to.

Cerebritis, not to mention cerebellitis, Bouillaud esteems consecutive on meningitis, while the symptoms of the one, he admits, resolve themselves into those of the other. In the first stage, we have disordered function, fever, delirium, subsultus, convulsions, followed by intolerance of light and noise, headache, and perverted sensations. In the second stage, or that of collapse, with effusion and suppuration, sopor and coma replace delirium: the pupils become dilated, the limbs paralysed, and we have unequal pulse and stertorous breathing. Should death not immediately ensue, chronic encephalitis and mania supervene. Acute cerebritis is often partial, in which case, the most constant symptom, according to Bouillaud, is spasmodic contraction of the locomotive organs, the limbs becoming half flexed and rigid; and if the muscles of one side of the face be affected, we have deviation of the commissure of the lips opposite the inflamed hemisphere. I have witnessed this in adults, and more than once in children. A plethoric, over-fed little girl complained of pain in one side of the head, with fever, the mouth being drawn to one side; and it was not until some weeks after, the usual remedies having been employed, that the deviation disappeared. Sometimes one eye is partially closed, which is to be distinguished from passive occlusion, as well as from spasms of the eye, ascribed to irritation of the tubercula quadrigemina, which I have likewise met with in the convulsive affections of children. Accessions, also, bearing a considerable resemblance to epilepsy, of which I have observed several instances in cerebritis supervening on fever, take place. Calmeil is of opinion that local encephalitis presents more decided characters than diffused. It may subsist on the periphery or in the substance, and there may be two or more inflamed points, whether in one or opposite lobes. Traumatic encephalitis, unless when modified by removal of a portion of the skull, and consequent lessening of pressure, presents symptoms much the same as in other cases. A man is stunned by a bruise, blow, wound, spent ball, or the kick of a horse; after some days, fever and delirium supervene, convulsions and paralysis follow, and the patient dies. Ducrot, in his thesis, mentions a man who, after the blow of a stone, entailing depression in the frontal bone, experienced cephalalgia, loss of memory, with aphonia, dysphagia, convulsions, hemiplegia, coma, and death. The right lobe was inflamed to the extent of an inch, but not softened. I have known a blow from the corner of a chimney-piece to bring on local encephalitis in a child, saved with difficulty. Ducrot also mentions a man who struck himself on a chimney; less fortunate, pus formed in the left lobe. The intellect may remain intact, though one lobe be softened; if both, however, prove so, the mental faculties are deeply implicated. Bouillaud, in the *Traité de l'encephalite*, relates several instances of idiocy, the result of inflammatory disorganization of the hemispheres. The symptoms, however, vary very much with the amount of pressure; hence complete hemiplegia from softening not larger than a nut, loss of sight and hearing, and, in some cases, towards the close of the disease, general paralysis. All this is proved by the fact, that, when an opening in the skull permits the brain to expand outwards, sight and hearing are unaffected, or nearly so, coma and paralysis are absent, and the patient retains his intellect. Saviard

mentions a person who had lost the upper part of the frontal bone, both parietal bones, and a great part of the occipital: the man employed a gourd to defend his head. Paroisse relates twenty-two cases of soldiers, in whom the vertex had been removed by sabre cuts. These poor fellows performed long journeys on foot, notwithstanding the injuries under which they laboured. O'Halloran, not to mention others, describes an individual, who, although hemiplegia to the left ensued, retained his intellect to the last, notwithstanding large portions of fetid brain and pus were evacuated through an opening in the right anterior portion of the skull. Inflammation of the cerebro-spinal axis, or cerebellum, presents the same pathological characters; the local and general symptoms, however, are comparatively obscure. Rolando, Flourens, and Bouillaud, are of opinion that this organ presides over equilibrium, or station and progression. If so, it would perhaps tend to explain those irregular motions, with tendency to turn round, jump, turn over, and go backwards, which we sometimes witness. I recollect a poor woman, whose head, perhaps from some chronic affection of the cerebellum, went incessantly to one side, with the short, quick jerk which we see in the little ivory automaton that spin.

Meningitis is commonest in infancy and childhood, not very rare in youth, most seldom in advanced years. According to Guersent and Foville, it is somewhat more frequent in girls than boys. Insolation, or sun-stroke, appears an occasional source; here, sometimes, it ensues in the form of apoplexy, at others in that of ordinary meningitis. Many die of it in warm climates—the inferior animals as well as man. In slight cases, aperients and quiet disperse the cephalalgia. Turbans, which seem worn for the purpose, appear best to abate the destructive influence of the solar rays. Blows, also falls, in the hands of careless nurses and others, are a more frequent cause of meningitis than what is supposed. Dentition proves an occasional one; I have seen well-marked instances from it. Suppressed eruptions, not to advert to the occasional baneful results of fevers and febrile eruptive disorders, are among the sources of meningitis. Foville mentions a singular instance of meningitis, with concurrent arthritis, and, in some of the joints, ankylosis, after the operation for hydrocele; the fingers, toes, jaws, and even the atlas and axis, were affected. Bouillaud's work on encephalitis contains an abstract of forty-five cases, ten of which were from wounds in the brain; six from moral causes; two from irritation in external nerves, the one from ligature of the brachial plexus, the other from laborious dentition; two from erysipelas extending to the encephalon; three from abuse of strong drink; two from suppression of external chronic inflammation; one from otitis; and three consecutive on apoplexy. In one of these last, the disease came on during the exhibition of *nux vomica* for the paralysis: the causes of the disease in the remainder of the cases were unknown. Lallemand adverts to caries of the pars petrosa as a frequent source of encephalitis. In his second letter, this writer mentions that twenty-two died during the first week, twelve in the second, and seven in the third, while others lasted weeks, months, and even years. Epidemic phrenitis, strange to say, is adverted to by Forestus, Saahman, and Sauvages. Faure Villar speaks of one hundred and fourteen soldiers of the same corps being seized, a few years back, in the course of ten weeks, at Versailles: of these, forty-one perished, with the usual altera-

tions on the cerebral surface and in the ventricles: but, as sixteen of the number are reported to have displayed petechiæ, I am greatly inclined to suspect that this and other alleged instances were neither more nor less than epidemic typhus.

Hydrocephalus acutus, so named, and meningitis, are equivalent diseases. Davis, in a recent work, insists on this identity; but it has long been fully conceded. The coincidence of cerebral disease, as marked by cephalalgia and death, with tubercles, was adverted to by Willis, in his work *De anima brutorum*. Percival speaks of the frequent connexion of hydrocephalus and scrofula; and Guersent had long marked the concurrence of granulations in the meninges with effusion. Subsequently, Dance established their analogy with the miliary tubercles found in the pleura and peritoneum—a conclusion which was substantiated by Rufz, Constant, and Gerhard. Piet, Coignet, Becquerel, Deberder, and Val-leix, further demonstrated the occurrence of tubercular meningitis, not merely in children but in adults. Forty cases, half of them in adults, are related in Parent and Martinet's monograph: the disease occurs at every age, though oftenest in childhood; it is rare, however, in infancy. Denis and Billard do not advert to it in the new-born; and Guersent was only able to demonstrate it twice—once in an infant of six weeks, once in a child of two months, phthisical to the last degree, and displaying a cavern in one lung. Blache, however, met with it twice within a twelvemonth, in the hospital Cochin, in children five and six months' old. In ninety cases, Piet found the maximum of frequency to obtain at from six to eight years. Of eighty, by Guersent, two occurred within the first year—sixteen from two till six—during the next three years, fifteen—from ten to fourteen, eleven—from fifteen to nineteen, eleven—at twenty-one, there were four—at twenty-two, two—and from that up to sixty-eight, a case or two for each year. He does not consider this table a fair criterion of the relative frequency of the disease, which was mostly studied in children. Adult cases, besides those in the memoirs of Parent and Martinet, are recorded by Dance and Deberder. In two hundred and nine by Coindet, the proportion of the sexes was about equal. Piet found fifteen out of twenty-three subjects evidently tuberculous; in all Guersent's cases, tubercles, with a single exception, were discovered in the lungs or bronchial glands; even children, seized in the midst of apparent health, were found to labour under strumous affections, and perhaps far-advanced pulmonary phthisis. In a case by Quin, in a boy of three, whose sister had died of the same complaint, four ounces serum were discovered in the ventricles, while the mesenteric glands were enlarged and softened. Tubercular degeneration, therefore, is a special predisposing cause, and explains very well why hydrocephalus, otherwise tuberculous meningitis, should affect particular individuals, as well as prove hereditary. Guersent has met with several instances of tubercular meningitis carrying off three or four children out of one family. Of three which I attended myself, two out of each, in one instance four, were attacked with hydrocephalus, the strumous diathesis being apparent in all. The supervention of phthisis on febrile eruptive disorders—variola, rubeola, and scarlatina more especially, is matter of observation; tuberculous meningitis, in like manner, from the development of tubercles in the meninges, often supervenes in the course of these diseases. In other respects, tubercles may lodge, for an inde-

terminate period, in the cerebral substance itself, without inducing local inflammation or functional disorder. Tuberculous meningitis, as appears from the tables of Pict and Guersent, ensues much oftener during the second than the first dentition; it also appears more frequently in the spring—an occurrence which I would ascribe to the operation of cold. I witnessed an exquisitely marked case of hydrocephalus, with copious effusion after death, induced in a girl of eleven, during the month of March, by exposure after the hair was cut close. Another of the same family died of scrofulous arthritis in the hip. The effects of exciting causes are subordinate to the tuberculous diathesis; once tubercles are developed, the former become infinitely more influential in the production of this fatal disorder. In many cases, however, the exciting cause beyond the presence of tubercles, is unknown, or perchance overlooked. Any thing that breaks down and debilitates—bad nursing, inferior nourishment, foul air, and dram-drinking—that leads, in fine, to scrofulous degeneration, also predisposes to hydrocephalus. Gölis refers the disease to several unusual sources, as hanging by the feet, pulling the hair, rocking in cradles, standing on the head, by which the brain is unduly agitated in its bony case. He asserts its production in a healthy infant, who, at the instigation of a Brunonian doctor, was daily plied with Malaga wine. The majority born during the bombardment of Vienna, in 1809, by the French, are said to have died, shortly after, of convulsions or meningitis.

Dropsy on the brain, the elaborate Gölis, in his *Praktische Abhandlungen*, defines as consisting in a collection of serous, lymphatic, purulent, or mixed fluids, deposited out of the circulation in the cavities of the cranium. What he terms the water-stroke, *Wasserschlag*, is a sudden effusion of fluid on the brain, *plötzlich erstandene Ergeissung*, followed in a few hours by death. Of this, which, in some cases at any rate, appears to correspond with the serous apoplexy of adults, I heard an instance fatal on the third day. The eighteen-month only child of a substantial citizen, says Gölis, speaking of this unusual disease, was put, laughing and sporting to bed; at ten the mother left him resting quietly, but in the morning found him dead. Even so did it fall out with a healthy girl, six months old, who fell asleep on the nurse's breast, and was dead by the morning; it was thought the child might have been suffocated, but on examination, *Leichenöffnung*, two ounces turbid serum were discovered in the ventricles. *Pörtenschlag*, the father, tells of a year-old child, who, well over night, was gone by the following day. A girl of sixteen months old, while teething, observes Quin, was seized with a fit: her eyes were distorted, pulse quick and slow by turns, while she ground her teeth and bit the spoon; dying five or six days after, an extraordinary amount of water was discovered in the ventricles. Acute hydrocephalus, Gölis admits, is always the result of turgescence and inflammation of the vessels and membranes of the brain, raging at every period, but more especially during the early days of existence, at the teething time, and thence on to manhood. Some describe two, others three, Gölis himself three stages. The finest and liveliest children, he affirms, as well as those worn out by chronic disease, scrofula in particular, fall victims to this murderous complaint. At first, indifferent to persons and things about them, silent, cross, and timid, their liveliness, playfulness, and little tricks disappear:

their prattle ceases; their cheeks grow pale, their eyes dim, while the muscles lose their fulness and become soft; the bowels are constipated, the pulse is irregular, the skin dry, the urine sparing, while they talk, mutter, grind the teeth in their sleep, and reply to questions with indifference; their gait, if they attempt to walk, is tottering, and the foot raised as if they wished to ascend a stair. It is difficult in children a few months old, to determine the congestive period, since, even in health, they readily vomit, cry out in their sleep, and are heavy and soporose when over fed. Sleeplessness, causeless crying, dulness, silence, stretching back the neck, unprovoked vomiting, intolerance of light, feeling the head, with fever and convulsions, betray the real nature of the case. In the next, or inflammatory stage, the patient, according to Gölis, complains of pain in the forehead extending to the eyes, and the child, tormented by inward suffering, finds neither rest nor comfort. The head, neck, and forehead are hot, the conjunctiva red and injected: otherwise, the eyes are sunk, and display a frightened expression, the nostrils dry, the lips pale or of a dull red, the breath often foul, while some move their jaws as if chewing, and others fetch their breath at regular intervals, which Portenschlag likens to the swinging of a pendulum. The bowels, also, are difficult to move, while the urine is sparing and turbid—symptoms, all of which may run their course in a few hours, or occupy as many days. In the third stage, or that of transudation, the little patients become progressively worse, can neither sit nor stand, and care no more for the mother's breast, only seeming to wish to lie quietly in bed. Many snuffle and drawl out their words, while others, with trembling hands, try to bore with their little fingers into one or the other ear. The outward senses, hearing excepted, which is often acute, become dull; the focus of the eye is altered, with enlarged pupil, and squinting. Patients become emaciated, the dry skin hanging in folds over the bones; the urine is passed unconsciously, with stridor of the teeth, shrill cries, complete coma, and death. In a few instances, the patient regains his intellect, eats and drinks, calls for his playthings, then relapses, and dies. Thus, Gölis speaks of a child of four, who, for days, unconscious of every person and thing, now asked for nurse and mother, his horse and whip, even ate a mess with pleasure; but, in a few short hours, sopor, convulsions, and tetanic spasms ensued, and, in thirty-six hours, death. The five-year old daughter of a professor became suddenly better in the third stage, so that it might be said she was right well, yet, when forty-eight hours were passed and gone, the child relapsed, and shortly after expired. The fourth stage, which Gölis terms that of paralysis, *Lähmung*, may be prolonged ten, fourteen, twenty, and, more rarely, thirty days, with universal spasmodic contractions, and frightful working. A girl, of eight, in whom the disease had subsisted a fortnight, tossed her hands about in every direction, principally, however, towards the head, which was agitated from side to side; the eyes were red and injected—I never contemplated anything more distressing. Now, violent fever, the last effort of expiring nature, is apt to ensue; the pupil is dilated to the utmost, the retina insensible to light, while the cornea is injected with blood, and the conjunctiva covered with mucus; the hands, one or both, become frequently paralysed, the extremities cold, the pulse grows rapid, the breathing short and quick, the head is thrown back, the heart con-

tracts feebly; the sick child, frightfully contorted, gasps with open mouth and rattling draw, and so ends, after countless torments, and worn to a skeleton, the sinless sufferer his brief career. The epithet hydrocephaloid, though hardly suitable, has been applied to coma or convulsions, dilated pupils, and insensibility to external impressions—the result of pure exhaustion, as induced by diarrhoea during weaning or teething, hysteria, prolonged lactation, and more especially excessive hemorrhage. I have witnessed tetanic rigidity with dilated and insensible pupils in this condition, so well described by Gooch and Marshall Hall, and which it is of great importance not to confound with meningitis; inasmuch as depletion and active aperients, suitable in one case, would be destructive in the other, which demands nourishment and diffusible stimuli. In reaction from debility, however induced, the head is not necessarily hot, while the pulse, though rapid, far from hard, full, and resisting, is small, thready, and jerking. In other respects, the history of the case, with the previous losses, whether hemorrhagic or otherwise, will throw light on its nature.

Chronic hydrocephalus is a complaint of greatly less frequency and infinitely less importance than acute; the diseases, in fact, are very different, and hardly bear the relation which the terms imply. I have met with a few instances of this singular disorder; in one the intellect was rather precocious. Hydrocephalic skulls are preserved in the different museums; there is one among others in that of the Edinburgh College of Surgeons, of which the dimensions are truly enormous. Children often labour under this complaint during their uterine life, and the child, whether from pressure, or the necessity of opening the head, is apt to perish at birth; a few, however, survive weeks, months, more rarely years, and then, after exhibiting all the phenomena of imperfect physical and moral development, sink. Many, though not all, are reduced to the condition of idiots. Life, says Gölis, is purely vegetative; no spark of that Godlike illumination, reason, issues from the torpid, paralysed machine. Alike insensible to pain and pleasure, unacquainted with the world, or their own existence, these marble images are more the objects of humbling contemplation, as regards human imperfection, than of pity. Breschet divides cases into those coming on accidentally, or from disease of the brain and membranes, and those from defective organic development. The division of hydrocephalus into internal and external, fluid in the latter being accumulated between the perostium and external aponeurosis, or between the bone and pericranium, has justly lapsed into disuetude. In fact, rare instances excepted, there is no such disease as hydrocephalus externus; and the name only serves as a puzzle to beginners. Breschet speaks of encysted dropsy in adults and children, also of dropsy of the septum lucidum. This writer conceives that the frequency of intracranial effusion, during the foetal life, may in some measure be explained by the large amount, at that period, of the cerebro-spinal fluid. The head, however, is not always larger than natural; and Baron, Gall, and Gölis, have discovered effusion after death, with imperfectly developed encephalon, when the cranium displayed its ordinary form and volume. In other respects, chronic hydrocephalus, so named, rarely or never succeeds acute. When it occurs after birth, there has probably been a predisposition; but, even in this case, there is little or no resemblance to the acute disease. As a general

rule, chronic hydrocephalus is fatal a short time after birth; a few, however, those more especially in whom the disease supervenes subsequently, survive to a period comparatively advanced. The cranial bones are sometimes thick, much oftener thin, and, along with the membranes, well formed, although the brain itself prove deficient; often, however, the osseous covering is defective. In some instances, the viscus has but one cavity, and seems made up of one hemisphere. Carlisle found a unilocular brain, so to speak, in a woman of twenty; the corpus callosum was hardly apparent. Here the faculties presented nothing peculiar; but, in a case by Bianchi, there was perfect idiocy. Gölis adverts to the greater frequency of the complaint in the offspring of drunkards. Peter Frank mentions a woman who had seven hydrocephaloid children in succession. In the instances of congenital hydrocephalus which came under my own observation, there was nothing remarkable about the parents. Pints, and even quarts of fluid have been discovered after death. Gölis, in the treatment of this disease, seems to place confidence in small repeated doses of calomel, and in dressing the shorn scalp with mercurial ointment. There is little, however, to be done beyond attending to general hygienic indications. Paracentesis, once or oftener, through the frontal or coronal suture, with a lancet, small trocar, or grooved needle, closing the wound, after evacuating the fluid, with a bit of sticking-plaster, then, and after, exercising gentle compression, has succeeded, in a few instances, in the hands of Conquest, Vose, Gräfe, Russel, and Freckleton. Mr. Greatwood mentions the recovery of a hydrocephalic child, from whose head the fluid had escaped, in consequence of falling on a nail. When there is cerebral disorganization, however, it is not easy to imagine recovery; at any rate, Dupuytren punctured thrice, and Breschet several times, without success; the latter, therefore, though somewhat too unconditionally, condemns the operation as one inflicting useless pain, and accelerating dissolution.

Cases in Parent and Martinet's work, presenting sanguineous injection, sero-purulent infiltration of the pia mater, concurrently with reddening, softening, and hardening of the brain, demonstrate the occurrence of meningo-cephalitis. Out of fifty-two of those cases, pus appeared but five times on the surface of the arachnoid; in thirty, the pia mater was red and injected, while a serous, purulent, sero-purulent, or bloody fluid, lodged in the convolutions; in twenty-six, the brain was softened locally or generally, and in thirteen, dense and injected with blood. According to Andral, when meningitis is seated on the convexity of the hemisphere, the cortical substance is not infrequently injected and softened so as to be converted into a kind of pulp. Bouillaud follows Lallemand in his *Lettres Anatomico-pathologiques sur l'Encephale*, in successively describing softening, with sanguineous or purulent infiltration, recent and encysted abscess, red indurations, and cicatrices. False membranes sometimes assume the encysted form, and become the depositories of blood, pus, and other morbid products. If the patient survive long enough, false membranes sometimes become organized. Layers of pus have been mistaken for them. In other respects, pus, yellow or green, may be lodged between the pia mater and arachnoid, on a lobe, on the cerebellum, under the pons Varolii, on the base of the brain, or over a great portion of the cerebral surface. It may also be infiltrated, or form deposits in cavities of which the walls are

healthy or greatly disorganized. According to Calmeil, pus is not so fluid as softened cerebral matter, neither does it gather in drops, or spread the same way under the finger; both again are alike distinct from fat and tubercle. Pus, it is to be observed, may be deposited without there being always concurrent destruction of the parenchyma. Softening, not to be confounded with cadaveric change, red, yellow, or white, superficial or deep-seated, general or local, may be the result of inflammation; or it may ensue in old persons, by a process which Abercrombie and others have compared to gangrene in the extremities, from obliteration of the arteries. In one or two rare instances, gangrene, itself, generally traumatic, has been witnessed. Serous effusion, commonly limpid, varies in amount from a few drachms to several ounces. I have more than once found this the only morbid product after death. Adhesions have been considered most frequent on the under surface of the arachnoid; they occur, however, in many other situations. Sometimes morbid changes are confined to the cerebral substance, sometimes to the meninges; Andral found them most frequent in the latter. The alterations discoverable in hydrocephalus are no ways peculiar. Gölis, Cheyne, and Andral, speak of oedema of the substance of the brain. The parietes of the ventricles, fornix, and septum lucidum, may be softened to the consistence of pulp or cream. Sometimes the septum is torn, but this readily occurs in the examination. It has happened, however, that cases which, from the coma and other symptoms, seemed to indicate copious effusion, have not displayed this result. As to other morbid products, Andral discovered tubercles in the pia mater, and between the convolutions, as well as concurrently in almost every organ. Possibly the miliary tubercles met with in some cases of acute hydrocephalus, may occasionally owe their origin to the inflammation. In the brain itself, tubercles, white or yellowish, vary in size from a pin-head or pea to a walnut; Leveillé, in his thesis, adverts to some large as an egg. In a few instances, they are flat in place of globular; usually encysted, sometimes otherwise. Calmeil discovered one the size of a chesnut on the surface of the dura mater, which had pushed before it the layers of the pia mater, and depressed the anterior lobe. In other respects, tubercles, attended by no fixed sign, have been found in every part of the brain. Rochoux mentions a case in which there was loss of memory and judgment. Here a tubercle the size of a nut was discovered in the left lobe of the cerebellum, while four ounces of serum abounded in the ventricles. The coincidence of amaurosis in children, with tubercles in this portion of the brain, has been affirmed by several. Foville, indeed, mentions a case in which excessive sensibility of the surface led him to diagnose this lesion, revealed accordingly after death, by central tubercle, the size of an egg, with surrounding inflammation. Abercrombie mentions a languid, sallow girl, who complained of pain in the head, dying comatose, in whom there were tubercles in the cerebrum, cerebellum, and lungs; the intestines were agglutinated. Another, with a scrofulous sore in the arm, after a feverish attack, contracted inveterate headache. Dying rather unexpectedly, the cerebrum, cerebellum, lungs, and Fallopian tubes, were all tuberculous. A boy of nine expired suddenly, after vomiting and prolonged headache, also another of three, after preceding coma, when tubercles were seen in the brains of both. A gentleman of thirty-four, who had laboured four

years under headache, vertigo, and dimness of vision, died in a paroxysm, when a tubercle was discovered in the left lobe of the cerebellum. Effusion, with other structural changes, subsisted in the foregoing and other instances. Abercrombie also relates some examples of what he terms encysted albuminous matter, in which the symptoms were very similar. This, probably, was analogous to the pearly masses of cholesterine, resembling spermaceti, which once or twice have been met with. Couerbes, indeed, affirms that the brain always contains a proportion of this substance. Induration and atrophy, so named, are rather equivocal evidences of morbid changes. Encephaloma or sarcoma is rare: Louis was of opinion, when productions of this kind appeared externally, that they escaped from within. Fungoid tumours of the dura mater, I do not here advert to. Cysticerci and hydatids have both been discovered. The former are of a more advanced organization than the latter. They may occur on the pia mater, cerebral substance, and plexus choroides; in the last, however, they must be distinguished from serous dilatations, incident to the part. These minute beings are delineated by Rudolphi, in his *Historia entozoarum*, as well as by Bremser. The animal, not very unlike a small glass bubble, displays a moveable neck, terminated by four suckers, and, at the very extremity, best seen with a magnifier, a double row of hooks. When dead, and shrunk into the caudal extremity, cysticerci are about the size of a grape-stone. Encysted or not, in fat or muscle, they are large as a good-sized pea. I have studied them in swine, animals often overrun with these parasites, and in which they seem to have been confounded with tubercles. Indeed, the French use the term *cysticerque ladrerie*, from *λαιδρὸς*, *ladrerie*—with us, measles, being an appellation applied to the disease in swine. The occurrence of the cysticercus, in the human subject, had almost been lost sight of, till Calmeil, in the *Journal Hebdomadaire*, published two examples, furnished by the brains of patients dying at Charenton. He afterwards met with instances at the Bicêtre and other hospitals. Louis witnessed cysticerci in the brains of phthisical persons. Treutler detected seventeen in the ventricles of a dropsical woman; and Himly found cysticerci below the pia mater of an individual who had dropsy of the face. Mania, apoplexy, and convulsions, have subsisted in persons in whom cerebral cysticerci were discovered after death. It is a mistake, as regards the remaining vesicular worm, not to speak of vesicles in the choroid coat, to esteem the serous cysts, apoplectic and others, met with in the brain, as hydatids. A cyst containing sixteen ounces, has been discovered in the left ventricle: but it does not seem likely that it was an hydatid. Calmeil mentions an officer gradually deprived of intellect and memory after previous violent pain in the head. Coma and death at last ensued; when it was discovered, that the whole encephalon was invaded by acephalocysts, varying in dimensions from a grape-stone to a pigeon's egg. A girl entered La Charité, with loss of intellect and memory; five or six serous cysts were found on the surface of the upper part of the brain. Andral, from whom I take this case, also adverts to that of a man of seventy, in whom a cyst, large as an apple, subsisted on the pia mater. A woman died in Rostan's ward, in whom cerebral softening and an acephalocyst, the size of a nut, were found in the right hemisphere. He also mentions an insane person whose whole brain was strewn with cysts large as a pea.

The treatment of meningeal and encephalic inflammation consists in local and general depletion, cold applications, counterirritation, and purgatives. The amount to be withdrawn will greatly depend on the violence and recency of the attack, the constitution, age, and habits of the patient; and on the circumstance, as to whether the disease ensued in the idiopathic form, or as a complication. Provided adequate sanguineous evacuation be practised, I do not think it matters much whether in the vicinity, or at a distance from the affected organ. On the whole, I prefer the arm to the temporal artery or jugular vein. Early, vigorous blood-letting is preferable to a greater amount at longer intervals. The patient should be bled in the erect or sitting posture, from a large orifice, and the blood allowed to flow till the pulse faltered, and the face grew pale. Some, however, bear the loss of twenty, thirty, and even forty ounces of blood, as well as others do that of ten or fifteen. It is absurd to palter; if the disease be not subdued, the patient dies. Leeches on the temples, as well as behind the ears, and cupping on the nape, are useful auxiliaries. Pressure on the carotid is a measure which I do not advocate. Copland justly remarks, that we are not to suppose sanguineous depletions or cold applications counterindicated in sopor or coma, so long as the temperature of the head is increased, and the pulsations of the carotid are full and strong. Crawford states, that he has seen a patient recover from profound coma, after the abstraction of a small quantity of blood by means of a cupping-glass. When carus or coma, however, notwithstanding previous treatment, supervenes, the patient's danger is greatly increased. Should early copious depletion not have relieved the cephalalgia, it will be matter for consideration whether to continue the general, or abide by local detractions. Much will depend on the aspect of the blood, the patient's strength, and the supervening exacerbation. In many cases, it will be proper to bleed a second, or even a third or fourth time, till the disease in fact give way. A tablespoonful every two or three hours of an eight-ounce mixture, containing a grain or two of the tartrate of antimony, and a drachm of the tincture of digitalis, helps to lower the general circulation, and abate reaction after blood-letting. Antimony was very useful in the hands of Desault and Bichat; but Ducrot, and more recently Lallemand, protested against its administration, at least as an emetic. Calmeil, however, has seen it continued for weeks without inconvenience; and Gendrin conceives that we derive advantage from its exhibition, just as we do in pneumonia and rheumatismal arthritis. A child of seven, according to this writer, seized with rigors, fever, vomiting, intense cephalalgia and intolerance of light, was somewhat relieved by means of eight leeches behind the ears, and a blister to the nape. He answered correctly, though slowly, to questions; often applied his hands to his head, and complained of pain in the sinciput. Being very weak, ten grains kermes and three of tartar emetic were exhibited in a three-ounce mixture, with abatement of night delirium and stupor. After this the tartrate was given, six grains to the three ounces, with one ounce syrup of mallows; after which, the pain in the head, along with a concurrent affection of the lungs, completely subsided. In the case of a carman also, fever, headache, and delirium, were quelled by pretty large doses of the tartrate of antimony; but returned when it was discontinued, and ceased when it was resumed.

Calomel, pushed to salivation, does not appear equally efficient as in

other inflammatory affections; it is difficult, however, to induce salivation in meningitis. Gendrin speaks of a well-marked case with fever, cephalalgia, and stupor, in which he succeeded by means of calomel pushed to ptyalism. It is sometimes advantageous to exhibit calomel and antimony together, or at least concurrently; mercurial ointment may be rubbed in at the same time, and applied as a dressing to blisters. Some management is necessary in the application of cold to the head. It has been recommended to place the patient in a tub or warm bath, with the feet, at least, immersed in hot water; and the cooling fluid poured from a height on the head and shoulders, after which the patient, well and carefully dried, is replaced in bed. A bladder containing pounded ice, when it can be procured, is very suitable. Keeping the head cool by means of a piece of linen, moistened with an evaporating lotion composed of vinegar and water, with the addition of a little spirits, answers very well, alone, or after the preceding methods. In all cases, the head is to be previously shaved, the pillow protected with oiled silk, and great care taken to intermit the lotion when the heat of the scalp falls below the natural standard. Abercrombie, as illustrative of the effects of cold, mentions coma, preceded by fever and restlessness, in a plethoric individual. He had been an hour in this state, with a flushed turgid countenance, when he was raised on his seat, a basin placed under his chin, and a stream of water directed over the vertex. A few minutes hardly elapsed ere he recovered, and next day was in ordinary health. I thus, indeed, more than once, dispersed the coma consequent on drink, both in young and old persons. He places this procedure, with reason, before the warm bath in the convulsive affections of children. Here I have tried it with effect, the child, however, being previously immersed in warm water. Calmeil speaks highly of the tepid bath, surrounding the head with pounded ice, as always procuring remission of the symptoms. He finds this method preferable to cold affusion, which he avers has been cruelly abused.

Counterirritation must not be premature. I commonly practise it on the nape and behind the ears. Many, indeed, attach importance to revulsives, mustard sinapisms, applied to remote surfaces, as the legs, thighs, and feet. Rostan saved a woman by inducing vesication in the face, where she had previously been affected with a herpetic eruption. Gendrin mentions a young woman who laboured under fever, delirium, then profound coma and insensibility, which bleeding, leeching, and cold affusion, with ice to the head, did not abate. A large moxa was applied behind the right mastoid process, and next day one behind the left; these were followed by progressive amendment and recovery. Opiates, unless perchance in case of sinking, after precursory bleeding and purging, are not suitable in cerebral, as in other inflammations. Brisk purging, by means of calomel, castor or croton oil, calomel and jalap, at once a depletory and derivative, is a remedy respecting whose efficacy opinion does not vary: it is perfectly astonishing how much some will not only bear but require. In the case of a girl of eleven by Abercrombie, headache, vomiting, obstinate constipation, stupor bordering on coma, with rapid pulse, had been vainly combated for six days, by means of purgatives, blistering, and mercury to salivation. On being bled from the arm, however, the bowels were acted on, the headache was relieved, the pulse came down, the vomiting ceased, and in a few days

the patient was well. In another of the same age, with vomiting, headache, delirium, quick pulse, convulsions, and coma, supervening on scarlatinous anasarca, purgatives, with repeated local and general bleeding, freed the patient, not only from cerebral disease, but intercurrent pneumonia. In a youth who laboured under headache, vomiting, convulsions, and impending coma, ordinary purgatives failed; but croton oil having been given, it operated seven or eight times, and next day he was well. Croton oil, so as to produce active purging, acted to such purpose in a young man, in whom general and topical bleeding, blisters, purgatives, and cold applications, had failed to remove headache, incoherence, and double vision, as almost immediately to free him from the complaint. Squinting, vomiting, stupor, and convulsions, in a child of three months; also fever, delirium, stupor, and squinting, in a girl of seven, were relieved by active purging, with other remedies. In one curious instance, in the person of a young lady, the disease returning five or six times when apparently cured, photophobia, headache, delirium, squinting, vomiting, stupor, and impending convulsions, were removed by repeated bleeding, blistering, purgatives, and mercury, so as to affect the mouth. A young lady of twenty-one, labouring under headache, delirium, stupor, and coma, supervening on continued fever, was not relieved by the foregoing remedies, till at the end of a fortnight, copious discharge of blood, lasting three days, left her pale and exhausted, but free from stupor. So in a youth of seventeen, headache, delirium, and coma, having lasted four days, were not abated by bleeding, purging, and mercurials, till fourteen evacuations having been induced in one day, the complaint subsided. A boy of twelve, seized after scarlatina, with headache, vomiting, stupor, and blindness, experienced progressive amendment by means of general bleeding, cold applications, and active purging. After five or six evacuations from the bowels, the sight began to return, and in the evening was entirely restored. Local encephalitis, demands active leeching and counter-irritation, as much as general. The same remark extends to cerebellitis, so far as it can be discriminated from cerebritis, or is associated with it. In chronic encephalitis or meningitis, we may have recourse to issues and setons in the nape, with attention to the bowels, strict temperance as regards eating and drinking, prolonged gentle exercise in the open air, and the shower-bath.

The treatment of the meningitis of infancy, so common and destructive, is precisely the same as that already laid down. I am firmly of opinion that if the complaint were seen early, it might much oftener be successfully dealt with. In several instances, I have thus been able to arrest it, even in cases where the tendency seemed hereditary. Repeated leeching, with active purging, calomel, and tartarized antimony, cold applications to the head, and blisters to the nape, were remedies which I found successful in the cases, one of which had proceeded to coma, of two little girls; two of the elder branches of the same family having been previously carried off by the disease. Of the many unfavourable instances which I have witnessed, my chief regret was, that they were not earlier seen and more actively treated. Doubtless, tubercular meningitis must be esteemed less amenable to treatment; but if my hypothesis be conceded, that granular tubercles may result from, as well as precede inflammation, it would lead to greater confidence in the efficacy

of early and active treatment, which, after all, is our best and only resort. Cold affusion must not be carried too far; if productive of rigors, it must instantly be discontinued: in other respects, it is best borne at the commencement of the disease. Davis attaches great importance to mercury as a sialogogue: he thinks cupping behind the ears preferable to leeches. Cold affusions, reiterated or continued through the day, in combination with blood-letting, blisters, croton oil or calomel, and the tartrate of antimony, abate heat of surface, bring down the pulse, diminish thirst, and incline the patient to repose. In the third and fourth stages, the constitution becomes insensible to the action of every remedy; or if blisters vesicate, calomel purge, and diuretics induce increased discharge of urine, the effusion not the less persists. In the majority of instances, the inflammatory action has subsided when the patient comes to labour under the paralyzing effects of serum accumulated in the ventricles of the brain. Were the walls of the cranium yielding like the parieties of the chest and abdomen, or were paracentesis practicable, the result might be otherwise. I remember a case in which the surface was cool, the pulse tranquil, all inflammation had subsided, but the patient was sinking under the pressure. Here it did seem to me that paracentesis might possibly have saved the child's life; for on examination after death, the brain was free from every mark of disease, while the ventricles were turgid with limpid serum. Once effusion has ensued, inflammation having subsided, it is useless to pursue depletory measures farther, since they can only prejudice the remaining slender chance of recovery. I have found it advisable to exhibit wine and gentle nourishment, as jelly, panada, or milk; often, however, nothing is retained. In fact, during the painful, frequently protracted period, between effusion and death, the practitioner is hard put to, how to act. Sometimes a gentle aperient is required, an enema, or a few drops of squills in a diuretic mixture; occasionally, also, an opiate serves to induce repose. In any case, however, he must never intermit his attendance, since a solid recovery, however infrequently, sometimes rewards his assiduity. I can recall at least six instances; in four of these the coma had lasted but a few days; in one, a girl of eleven, it persisted three weeks, in another of two, a month. These last had long been given over; and death, at frequent intervals, was unhesitatingly calculated on. In both, irrespective of other means, the head was repeatedly blistered and dressed with mercurial ointment. At last, however, for we were long doubtful, the retina became sensible to impressions of light, the pupils contracted, vision, hearing, and intelligence returned, and life was saved. The youngest child, reduced from plumpness to skin and bone, first pronounced the name of a favourite aunt, then called for her mother, and, lastly, uttered the little words and phrases which she had previously made use of.

Cases of exhaustion, with pseudo-coma, have, I fear, been more than once mistaken for, and treated as hydrocephalus, to the mortal prejudice of the sufferer. It cannot, indeed, be too well known, that false coma may arise from causes the exact opposite of those which ordinarily induce it—anything, in fine, that reduces the pressure of the sanguineous column on the brain much below the standard of health. I have observed this bastard or spurious coma both after excessive leech-

ing and prolonged diarrhœa; in the course of fever, and during the process of teething. Wine negus, soups, perchance opiates, and the aromatic spirit of ammonia, are the remedies to which we are to resort. I have found the warm bath, and very small blisters to the back of the neck, useful. A lesser degree of this affection, as arising from diminished stimulus, constitutes the well-known affection termed delirium tremens, or mania a potu. I have witnessed its supervention after cholera asphyxia, as well as under other circumstances. Many examples of this disease—sometimes in literary persons, rarely females, commonly artisans and others who could afford to sot for days together, have come before me. It is rarely fatal on a first attack, but is very apt to become so in the long run. This clear form of nervous, often vascular exhaustion, perhaps attended with great gastric irritability, restlessness, rapid pulse, sleeplessness, and delirium, sometimes morose, often gay, difficult to repress, has been mistaken for arachnitis. The converse of this error also is very possible. Sometimes the mind remains clear or nearly so, though hallucinations of every description impair the senses. I have known people imagine they were laid in their coffins, and heard them hold seeming converse with departed spirits: a gentleman, who had not slept for three nights, once told me he saw the room as if filled with blue, flying demons. Towards the close, patients become more and more restless, rising up and sitting down, getting into and out of bed, often wanting to rush out of doors, or throw themselves from the window. The pulse also becomes alarmingly quick; I have known it one hundred and forty, fifty, and even sixty; and the patient, perhaps conversing quietly a short time before, suddenly expires. Drachm doses of laudanum may be alternated every two, three, or four hours, with a couple grains of the watery extract of opium, till the patient sleep. These may be combined with mulled ale or wine, brandy punch, coffee, with an egg beaten up in it, and good plain soup. Some not only bear, but require opiates to an amount that in health would prove altogether poisonous; in fact, they are necessary as a maintaining power to keep up the stimulus till the constitution is able to do without their support. The patient should always be encouraged, or even in a measure forced, to eat a little bread crumbled up with his drink. An egg beaten up, and flavoured with cinnamon and brandy, sometimes an oyster, proves truly restorative. Gastric irritability may be combated by means of blisters or antimonial plasters, with advantage. If the patient do well, he is able in a few days to have recourse to animal food; if otherwise, stimuli to any amount prove unavailing, the nervous system responds no more, and the sufferer perishes the victim of excess. Other remedies, as tartar emetic, and even bleeding, have been resorted to; but I do not conceive them suited to the disease.

II—APOPLEXY.

THIS frequent, and too often incurable disorder, may come on without a moment's warning. It may assail the judge on the bench, the merchant at his desk, the priest in the pulpit, and the workman at his task: sleeping, waking, standing, walking, sailing, or on horseback, may the

disease ensue. Out of sixty-nine cases collected by Rochoux, eleven only presented precursory symptoms, and of these, five laboured under habitual vertigo. Sometimes the disease is preceded, if not warded off, by epistaxis. The apoplectic seizure may be momentary or permanent; and followed or not by hemiplegia, paraplegia, or both, paralysis of one arm or leg, and other seizures hereafter to be specified. Sometimes the patient falls down, bereft of sense and motion, complete coma supervening; at others, convulsive movements ensue, the patient, perchance, being partially conscious. When the mental perceptions remain unimpaired, the disease comes more under the head of paralysis than apoplexy. In a recent case, I found the patient seated—repeated spasmodic extension of his legs having pushed him, chair and all, into the corner of the apartment, where the convulsions, for so they might be termed, still continued. Precursory pain, fulness, scotomata, and sparks before the eyes, had, I was informed, been most decided. In another, the patient, uttering a loud cry, fell forward at the door of the water-closet; the face was red, turgid, and injected; the eyes open, protuberant, and vacant; the breathing loud and stertorous, followed by death, in six hours. The stertor seems to arise from a sort of paralysis of the uvula, which librates backwards and forwards, as in common snoring. The peculiar noise is increased by the concomitant rattle arising from the rapidly increasing mucus in the bronchial passages. That respiration and life itself are not sooner interrupted, appears to be owing to the former being under the control of a portion of the spinal marrow not derived from the common sensorium. The face is not always red and turgid; it may wear the aspect of health, or even grow pale and livid. Abercrombie establishes three varieties: the first attended with sudden stupor, stertor, full pulse, convulsion or contraction of the extremities, ending or not in permanent paralysis; the second beginning with pain in the head, sickness, vomiting, syncope, cold surface, and feeble pulse, with rapid recovery, paralysis of one side, or fatal coma; in the third, sudden hemiplegia and loss of speech, with or without stupor, the patient eventually recovering or becoming permanently paralytic. Various anomalies have been observed, simple aphonia and dysphagia, with paralysis of the lips, tongue, and pharynx; occasionally, paralysis of the sphincters of the bladder and rectum. Sometimes the retina is insensible to impressions of light; one pupil, as Brodie has observed, being expanded, the other contracted; both, however, alike immoveable. In a few instances, vomiting is witnessed. The patient may seemingly recover, paralysis not ensuing for some time afterwards; or, should he rally, it will perhaps be found that this condition has supervened at once. The memory of words and power of utterance may be implicated from the first, or not till subsequently; sometimes the intellect is impaired before the attack. Patients may die outright, or life be protracted, in a state of partial stupor, for hours, days, or weeks. Some experience a succession of attacks—it may be six or seven, before the disease comes to a close; at others, as when it occurs early in life, perhaps but one, followed by paralysis of a leg or arm, sometimes both, the patient remaining exempt through the remainder of a protracted life. The paralytic affection too generally persists; but instances do arise in which the patient partially or wholly throws it off. In a gentleman whom I had under treatment, the first attack brought on loss of power on one side; a second, loss of feeling

on the opposite. Andral relates an example of complete impairment of feeling on five or six isolated points of the thorax. Sometimes one leg, more rarely an arm, is affected; I have known the latter, in two instances, in the course of fever. In a very few instances, the arm and leg of opposite sides are implicated. The writer last named speaks of a person in the hospital of La Pitie, who, after lying down well at night, was greatly surprised to find himself deprived of all power in the left arm, as well as the sight of the right eye, in the morning. One side of the face is apt to share the hemiplegia; in this case, the mouth, and a considerable portion of the cheek, are drawn to the sound side. I knew a military man in whom this, the only remaining apoplectic lesion, had subsisted many years. In recent cases, the flabby buccinator muscle and parieties are distended during expiration; whence a peculiar sound, resembling the noise made in smoking, and which Landré Beauvais, Rostan, and others, esteem of bad augury. The tongue also may be partially paralyzed; and when thrust out, the point turns not to the sound, but the affected side. This phenomenon has been considered inexplicable; but surely if the organ exert a protrusive power, the point will necessarily lapse in the direction of the affected side. Cruveilhier, along with others, has witnessed several instances of facial paralysis; but the observations of Bell and Shaw, on the functions of the facial nerve and trigemini, rendered him cautious in exclusively ascribing it to apoplexy. This species of paralysis has been known to arise from cold; in others, from falls inducing fracture of the petrous portion of the temporal bone. General paralysis, it is curious to observe, does not appear so certain an indication of cerebral hemorrhage as partial. Instances are on record, in which, while one side of the body was paralyzed, the other was convulsed. Ollivier describes a case with alternate convulsions and prostration. The temperature of paralyzed limbs is somewhat lowered: their diminished action, and lessened supply of blood, conspire to render them soft and flaccid.

The proximate cause of apoplexy, whether with or without effusion of blood or serum, is pressure on the brain. This, which appears self-evident, has been questioned by Serres, Abercrombie, and others, on conclusions deduced from the hydraulic law of the incompressibility of water. Granted: water is incompressible, but it may not the less be subjected to enormous pressure, so as to cause it to sweat through a hollow gold or brazen ball. The word incompressible, meaning that the fluid cannot be made to assume a smaller bulk, also suggests that it cannot be pressed at all, which is contrary to fact. In this last sense, indeed, the semifluid brain, in its unyielding case, is liable to pressure. Of this, any body who will raise himself quickly from a stooping to an erect posture, may render himself sensible. Straining at stool, and sudden muscular efforts, causing stars or sparks to flit before the eyes, have the same effect. Pressure, arising from a column of fluid, constitutes one of the most powerful forces in nature; and need we wonder, if that exerted by the heart and arteries, in one sense a great hydraulic machine, on the delicate encephalic structure, more especially in the event of arterial disease, should sometimes prove the source of rupture and death. Any momentary excitement of the arterial system, as also hypertrophy of the heart itself, is further conducive to this serious catastrophe. I do not contend for increased determination, other than

in the sense of increased momentum and rapidity of circulation through the tortuous vessels, communicating a shock at each angle of their course which may alone prove fatal. Once, indeed, effusion has occurred, the pulsatile impetus communicated to the effused mass, produces instant suspension of sensation and volition with the other phenomena characteristic of the disease. When the patient recovers, we have no means of ascertaining the nature of the morbid lesion; in the event of death, however, this may be determined with the greatest accuracy. Extravasation may ensue on the surface, in the substance, or in the cavities of the cerebrum; in the cerebellum and spinal marrow much more rarely. Occasionally cretaceous degeneration or ossification of the vessels, at other times, softening, preceded or not by inflammation, is precursory. Morgagni was of opinion, that sanguineous effusion was more frequent in the anterior than the posterior portion of the hemispheres. Out of sixty-five cases, in the first table of Rochoux, effusion occurred twenty-four times on one side, twenty-four times on the other; in the remainder on both. Of the first forty-eight, effusion took place four times in the cerebellum, eighteen times in the corpora striata; in five, the hemorrhage communicated with the ventricles. Of those in which effusion subsisted on both sides, it was twice into the cerebellum, thrice in the annular protuberance, and four times into the spinal marrow. In the second table, the parts in which the hemorrhage occurred are mentioned without distinction of side. Out of three hundred and eighty-six instances by Andral, two hundred and two presented hemorrhage in the lateral hemispheres, on a level with, as well as in, the corpora striata, and optic thalami; in the corpora striata sixty-one times; in the optic thalami thirty-five; in the hemispheres above the centrum ovale of Vieussens twenty-seven; and in the lateral lobes of the cerebellum sixteen times. From all which it would appear, that the cinereous portion of the corpora striata, also very liable to softening, the optic thalami, and parts adjacent, are those most subject to cerebral hemorrhage. Apoplectic effusion in the white central portions is rare; in Andral's table it does not appear once; yet this part is prone to softening, a condition which some would identify with apoplexy. Superficial effusion is common in what may be termed traumatic apoplexy, rather than in idiopathic or spontaneous. Dance relates a case of effusion, complicated with inflammation and softening, extending over both hemispheres. Commonly there is but one, occasionally several hemorrhagic deposits. Dance describes a case in which there were so many as fifteen or sixteen. The surrounding cerebral substance is generally sound, at other times soft, injected, and discoloured. This softening may prove the precursor, *hemorrhagipare*, as Rochoux terms it, else the sequence of apoplectic effusion.

Some have endeavoured, from the symptoms, to determine not merely the hemisphere, but the portion, as the corpus striatum, or optic thalamus, implicated. Yet, we cannot even affirm whether it be the cerebrum or the cerebellum. Death has been said to ensue more rapidly when the latter was the seat of hemorrhage. The same variety as to the paralysis has been witnessed: Bayle, not to mention others, even gives a case of effusion in the middle lobe of the cerebellum, in which there was no paralysis at all. Serres's assertion from Gall, as to priapism in cerebellar apoplexy, is not proved. In one instance, by Andral,

simultaneous effusion subsisted in the right lobes of the cerebrum and cerebellum; paralysis, of course, was to the left. Serres, Foville, and Pinol Grandehamp, would connect lesions of the corpus striatum with paralysis of the leg, those of the optic thalamus with paralysis of the arm, and lesions of both with paraplegia. Paralysis of the upper and lower extremities, however, as Rochoux observes, is daily witnessed when neither of these parts is implicated, while paralysis in arm or leg may follow either indifferently. Foville, Bouillaud, Gall, Cruveilhier, Lallemand, Serres, and others, make assertions on these points in opposition to each other, and which can never be determined; in fact, they commit the capital error of taking a part for the whole. Lesions of sensation and motion ensue, almost indifferently, from organic disease of any portion of the brain, or its annex the spinal marrow. The uses of the different parts, if any, I am of opinion, we shall never know.

It is a pathological condition of effused blood to coagulate, and, therefore, to separate into clot and serum; the latter being absorbed by the surrounding cellular tissue more quickly, though not more surely, beneath the arachnoid and in the cavity of the ventricles, than in the cerebral substance itself. The surrounding yellow tinge, the result of imbibition, gradually disappears, while the clot, becoming hard and black, is eventually absorbed. If the cyst, Cruveilhier observes, be examined under water, its ragged unequal walls display the minute extremities of the torn vessels. Daily, however, it becomes more compact, closes round the clot, while the cellular tissue assumes an organized aspect. There may be a knotted, less frequently a coloured linear cicatrix, else an irregular cavity, whose parietes are lined by a kind of cellular net-work, subsequently a yellowish serous membrane, which, as Riobé has shewn, exhales and absorbs. Further, Cruveilhier, contrary to Rochoux and others, is of opinion that inflammation and softening, whether white or red, are always consecutive on effusion. The distinction by Serres and Cruveilhier, of cerebral hemorrhage into venous and arterial, would be difficult to establish. The after division into sthenic or active, and asthenic or passive, is entirely nugatory. In so far as blood escapes by exhalation from the capillaries, lacerations, cicatrices, and cysts, will not be observable. The ventricles, cavity of the arachnoid, and sub-arachnoid cellular tissue, are the only points in which this can ensue. In other respects, the quantity of effusion varies in amount from a drachm or two, to several ounces. Not merely the arteries, but even the sinuses, though very rarely, as in a case by Douglas, have been ruptured. Hemorrhage, for the most part, cannot be referred to any particular vessel; but it has been traced to the cerebellar and basilar arteries, as well as the internal carotid, by Morgagni, Moulin, Mills, and others. De Haen describes rupture of the vessels in the choroid plexus; in a case by Serres, the pons Varolii was the point of effusion, the latter extending into the occipital fossa. Occasionally, serum, not blood, is discoverable; otherwise, the symptoms of serous are precisely those of hemorrhagic apoplexy. I have met instances myself; others are described by Andral and Abercrombie. As a notable amount of serum, the cephalo-rachidian fluid of some, is often discoverable, we cannot build much on its presence, unless the quantity prove very considerable. Gendrin speaks of serous effusion extrinsic to the arachnoid. In a third, but rarer form of apoplexy, to

which Abercrombie applied the term simple, others the unmeaning epithet of nervous, there is no effusion of any kind. A gentleman of sixty, on the point of retiring to bed, suddenly cried out and fell. He complained exceedingly of his head, and had barely consciousness to ask for advice, but added, that if it did not come quickly, he should be gone. In effect, stupor and insensibility rapidly supervened, and, in a few hours, he was no more. I examined every portion of the brain and cerebellum with the utmost care, but could not discover a trace of effusion, whether sanguineous or serous. Orfila mentions an instance in his *Médecine légale*, communicated by St. Rome, of a lady who fell back dead on her chair. Stertor, coma, paralysis, and convulsions, preceded death in a case under the younger Duncan, when no effusion was discoverable. A washerwoman, instanced by Abercrombie, became apoplectic while sneezing over her tub; a gentleman, also, was found lying comatose and stertorous across his bed; in neither, any more than in cases related by Morgagni, Ozanam, Nacquart, Powel, Stark, Copland, Boucher, Hébréard, Andral, or Bright, was there any discoverable effusion.

It might be supposed that the arteries securely imbedded in the brain, would rarely incur rupture; and, doubtless, without such provision, this casualty would oftener occur. When, however, disease, aneurism, and more especially cretaceous degeneration or ossification ensues, these vessels lose their expansile force, and perhaps yield to the increased molimen. In the event of effusion, probably just so much less blood enters the brain; but then the relation of the parts as proved by coma, paralysis, and convulsions, is altered. Traumatic apoplexy, for the symptoms are much the same, arises from wounds, blows, falls, bruises, and the like. In other respects, the phenomena connected with concussion and compression of the brain, are fully described in surgical works. The convulsive affections of children, hysteria, epilepsy, extreme heat, and cold, induce symptoms resembling apoplexy, and which prove occasionally fatal. Ossification of the arteries of the brain is a common occurrence in advanced life, though in what proportion we have no sufficient data for saying, and, everything else aliko, constitutes a powerful indirect cause. An example is related in an American journal of limited caries of the inner surface of the left parietal bone, inducing erosion of a vessel and effusion. Bright mentions a boy in whom aneurism of one of the smaller branches of the middle cerebral artery preceded rupture. Serres, also, relates a case in which there had been aneurism of the basilar artery. Of all the predisposing causes, however, plethora is the most powerful; but its ordinary ill effects are greatly aggravated by indolence, undue repletion, excess in alcoholic drinks, narcotics, febrile attacks, the sexual orgasm, the excitement of passion, anger, or sudden surprise, muscular efforts, sneezing, straining, and coughing, playing on wind instruments, and ligatures round the neck. Very often, however, the seizure ensues without any appreciable exciting cause whatever. The curious case of a boy who fell down, while whipping his top, from an over-tight neckcloth, is on record. The influence of age is unquestionable; once a man has become seventy or eighty, apoplexy may almost be considered a natural termination of existence. A large proportion of the aged die of apoplexy; and the transition is attended with so little pain or uneasiness, that the term euthanasia, as

applied to it, is hardly misplaced. Out of sixty-nine cases by Rochoux, nineteen took place at from twenty to fifty years of age; thirteen from fifty to sixty; twenty-four from sixty to seventy; and twelve from seventy to eighty. He does not state the sex; women, however, are very considerably less liable than men. It rarely occurs in young subjects; but instances will be found in Abercrombie, Andral, Serres, Guibert, and Payen. Apoplexy, in my opinion, contrary to the assertion of some, is not common among the poor; neither is it frequent, unless otherwise predisposed, among the studious. As for epidemic apoplexy, it is a pathological absurdity; in other respects, the disease is more common in town than country. The absence of habitual muscular effort in full-living persons especially, leaves a larger proportion of the sanguineous fluid to work the ill effects of repletion on the brain, or elsewhere. I cannot agree with those who refer most cases of apoplexy to the stomach, except, indeed, in so far as repletion and gluttony prove exciting causes. Bricheteau, Ravier, and Andral, with others already named, esteem cardiac hypertrophy a strongly exciting cause; but, as Lallemand and Rochoux observe, there are frequent concurrent obstacles, narrowing, and the like, at the mouth of the aorta. In forty-two cases examined by Rochoux, aneurismal dilatation of the heart, otherwise hypertrophy with dilatation, only occurred in three. In concentric hypertrophy, indeed, which, however, is very rare, the blood is lessened in quantity, and the force of its impulsion proportionably diminished. Leaving this apart, however, I entertain no doubt that the heart is the instrument through whose instrumentality sanguineous effusions, in almost every case, ensue. Menière, without the least foundation, refers to pregnancy as a cause. As to the alleged connexion of renal disease and apoplexy, the coma consequent on ischuria renalis is in no wise to be esteemed in this light.

The treatment of apoplexy, unfortunately, is unsatisfactory; methods, the most opposite, have occasionally proved successful; while, on the other hand, each and all have been found to fail. Nature, indeed, sometimes removes the effusion—a task to which art is confessedly unequal. Blood-letting, a procedure consecrated by custom and popular prejudice, is the common resort. I have again and again tried bleeding, generally from the arm, occasionally the temporal artery, avoiding those cases in which reaction was absent or deficient, but with little success; some, indeed, recovered, but the majority died. In fact, with pressure on the tender cerebral pulp, equal to the force of the heart's systole, increased by so much as the superficies of the effusion is greater than that of a section of the impelling column, we can anticipate little advantage from all the detraction we are able to practice. I entertain, however, a much higher opinion of the efficacy of bleeding, in cases wherein apoplexy is threatened, but in which it has not actually ensued. From the history of some of my cases, the preliminary headache, giddiness, partial stupor, and occasional epistaxis, I am firmly of opinion that venesection and a croton oil purge, would have averted the catastrophe; as well as in others, short of ossification and a worn out system, have relieved the coma which occasionally ensues from pressure without effusion. The amount of detraction will depend on the habit of the patient and the relief yielded to the circulation in the brain. In one successful case by Abercrombie, bleeding was carried to the extent of one hundred ounces in

all; while twenty drops of croton oil were successively exhibited. Gregory, Dreysig, and Condie, prefer cupping-glasses to the back of the neck before leeches to the temples, and have seen patients roused thereby, when general bleeding failed. Cruveilhier employed bleeding from the pituitary or Schneiderian membrane, by means of an instrument resembling the *lithotome caché*, or, more simply, leeches. Lancisi, indeed, adverts to a person in whom an apoplectic outbreak appeared to be averted by copious epistaxis. I have certainly witnessed persons, if I might judge from the symptoms, in the imminence of apoplexy, who were relieved by spontaneous hemorrhage, occasionally to a large amount, from the nostrils. The same caution is necessary, as in encephalitis, not to mistake pseudo-coma for apoplexy. Tweedie records hemiplegia, and even insanity, as arising from uterine hemorrhage; and Hammond mentions a woman who was cupped, purged, and bled, for cephalalgia, thus ensuing. Hemiplegia, with incipient aphonia and dysphagia, at last came on; but the patient was so fortunate as to recover.

Next to bleeding comes prompt and active purgation. As the patient can seldom swallow, at least at first, we may place a couple drops croton oil, or a linctus containing twelve grains calomel on the tongue, else resort to a tepid enema, with which a teaspoonful of mustard has been mixed. The cold dash to the scalp may be cautiously resorted to, but not in the absence of reaction; nor must we induce a preternatural degree of cold. Copland caused water to be poured on the head of a man who had become apoplectic in one of the London stages, after which he was able to speak and swallow, when one full bleeding and an active purgative were ordered. Small doses of the tartrate of antimony can do no harm; but the doubtful practice of emetics should not be resorted to till the patient has been well bled and purged. Counter-irritation to the nape, and sinapisms to the extremities, so commonly employed, are of uncertain efficacy. In the event of prostration and collapse, there can be no hesitation as to the administration of camphor, ether, and ammonia. The patient should be kept quiet, with the head and shoulders raised. Pernicious intermittent, as mentioned before, sometimes comes on with a comatose insultus. In such cases, large doses of quinine have been administered with success. Patients sometimes rally for a time, then suddenly grow worse and die. Cruveilhier mentions a judge, at Limoges, who took ill on the bench; after two days coma, he recovered sufficiently to attend to his affairs. Rest, purging, and bloodletting were recommended; and the over-confident friends were advised to beware of the eighth day. No precaution, however, was resorted to; and it so fell out that stupor, followed by death, did ensue on the eighth day. It is of great importance, both as a preventative and safeguard against relapse, that the patient should observe strict temperance, sleep on a mattress with an elevated bolster, in an airy apartment, pay great attention to the bowels, and take such exercise in the open air, as will effect a sufficient derivation from the brain. I have thus, in two or three well-marked instances, arrested the disease. Sometimes, patients, supposed to die of apoplexy, as Orfila observes, have spontaneously recovered. The Abbé Prévôt, seized, 1763, in the forest of Chantilli, was directed to be opened, in order to ascertain the cause of his decease. At the first stroke of the scalpel, the unfortunate man cried out, but it was too late. La Place,

who was consulted as to what should be done, replied, sigh and be silent—*gemir et se taire*. In the case of the unhappy Vesalius, a similar occurrence procured him a citation from the Inquisition; and it was only through the interference of Philip II. that he got off with a pilgrimage to Palestine.

III—MYELITIS, INFLAMMATION OF THE SPINAL MARROW.

INFLAMMATION of the substance, or membranes of the spinal marrow, displays much the same characters as in corresponding portions of the encephalon. The symptoms of meningo-myelitis, so far as we know, are aliko with those of myelitis itself. Spinal and encephalic inflammation appears occasionally combined. There are pain and burning heat in the affected part. The former is said to be augmented by pressure when the posterior portion of the marrow is implicated; not so when the anterior is engaged. Joseph Frank affirms, that motion in the legs induces no aggravation; Khloss, however, avers that this is otherwise when the patient is stretched on a soft bed. In some cases, however, the sufferer is unable to move the lower extremities; and in an instance by Ollivier, the weight of the bed-clothes could not be borne. Sometimes there are paralysis and convulsions, sometimes neither; delirium, also, may or may not ensue. The fact of nerves from the anterior portion of the spinal marrow presiding over motion, from the posterior over sensation, does not throw much light on the diagnosis. Whether meningitic or medullary, myelitis commonly follows an acute course; it is apt, however, from the cephalalgia which attends it, to prove insidious. In cervical myelitis, which appears most frequent, inflammation affects the posterior portion of the medulla, the most irritable and tender spot, as Calmeil observes, in the human frame. Here the muscles of the neck, and upper extremities, preceded by numbness, may become convulsed, and gradually paralysed. Respiration is painful, laborious, and diaphragmatic. In one instance, Ollivier witnessed dysphagia; in another, Dosportes saw torticollis. Should inflammation reside in the dorsal portion, there are convulsive motions of the trunk; respiration is short and diaphragmatic, with palpitation, to which Pinel the younger adds great nervous prostration. In the event of lumbar myelitis, there is deep-seated local pain, with paralysis of the lower extremities, retention, or involuntary discharge of urine and feces; occasionally, in traumatic cases more especially, morbid erections, bordering on satyriasis. In a case resulting from a fall, the particulars of which were related to me, the legs were spasmodically affected, so that the heels struck the buttocks with violence. Out of twenty subjects, Calmeil mentions that sixteen were of the male sex, and nearly all about the age of thirty. Some had been exposed to wet and cold, drank hard, had fallen, or incurred blows, while others laboured under previous local or encephalic disorder, as caries, tubercles, acrophalocysts, cysticerci, or cancer. Ulceration and extensive eschars have been noticed as occasional sources of myelitis. The same writer in seventeen out of twenty cases, mentions curvature of the head and trunk backward, trismus four times, dysphagia eight,

subsultus six, convulsions of the face thrice, epilepsy once, stupor and coma fifteen times, hemiplegia, paraplegia, general paralysis, and difficult utterance, severally, once or twice. The average duration was ten days; Deslandes, however, witnessed the persistence of one case four and twenty days; Ollivier another thirty. Symptoms sometimes ensue, implying changes, not borne out by dissection. Thus, Martinet and Parent Duchâtelet mention an elderly female, who, after concussion on the head and vertebral column, experienced pain in the head and occiput, then rigidity of the jaw and limbs, after four months, tetanus and death. The nervous centres, though attentively examined, were sound. A young man also is spoken of, who, after continued exposure by night and by day, was attacked, several times a day, with paroxysms of trismus and opisthotonos, attended with violent pain in the back. On the fifteenth day, the mind remaining free, death ensued; yet, neither in the brain nor spinal marrow, a few ounces of serum at the base of the former excepted, was there any evidence of disease. Occasionally the pain and tetanic spasms remit, respiration becomes free, and the body is covered with sweat; but the disease, notwithstanding local and general bleeding, counterirritation, powerful purgatives, or opium, not the less pursues its fatal course. Chronic myelitis, however, may persist for years; here pain may long precede paralysis, whether in the limbs, bladder, or rectum. Paralysis extending to the four extremities, is usually attended with diminished heat and transpiration. I have known it to persist for years; perhaps with occasional epileptic paroxysms, but without any impairment of the intellectual powers.

Calmeil, Ollivier, and Portal, describe induration, occasionally considerable, of the spinal marrow; Bouillaud, Calmeil, Pinel, and others, softening. The latter, according to Billard, considerable in infants, Piorry thinks may, in some instances, be connected with long-continued dorsal decubitus. Abercrombie discovered bloody sanies, and purulent flocculi in a youth of eighteen, in whom the anterior columns of the medulla were softened to diffuence. There had been caries of one of the dorsal vertebræ, and retention of urine, during life; the mind, however, was entire. Complete softening was observed, by the same author, in a man of fifty, in whom headache, hemiplegia, and delirium, had ensued, after exposure outside a coach. Royer Collard mentions persistence of feeling in the four extremities, as well as of voluntary motion in the arms, in an insane person, in whom the anterior columns were softened as high as the corpora pyramidalia; Calmeil, indeed, avers several instances of rachidian softening in lunatics. In twenty-five cases, he observed it six times in the cervical portion, eleven in the dorsal, five in the dorso-lumbar, twice in the lumbar, and once throughout the whole tract. The left half of the medulla was affected in one instance, in two the anterior fibres. In ten, the softened tissue preserved its natural hue, six times it was yellow, or yellowish, four times pink, red thrice, brown once, and once mixed with blood. As for the membranes, the pia mater was once brown, red and injected seven times, and twice covered with false membranes. In a case by Abercrombie, in which death had been preceded by intense pain, purulent matter flowed in considerable quantity on taking out the spinal marrow. In another, by Duncan, the patient having expired in the bath, the

dorsal and lumbar portions of the cord were covered with coagulable lymph, the membranes being further red and injected. Ollivier, in the third edition of his work, describes a number of instances which displayed the usual products—pus, serum, and coagulable lymph, occasionally a sort of gelatinous matter, mostly beneath the arachnoid, and on the surface of the pia mater. Sometimes an abscess forms, or hemorrhahis, spinal apoplexy, is also witnessed. As Calmeil, however, observes, when we open the spinal canal of a person, cut off by accident in the prime of life, we are inundated by the blood. Cases detailed by Morgagni, Bergamaschi, and Ollivier, I should say were referable more to congestion than spinal apoplexy; to aneurismal effusion I have elsewhere adverted. Instances of spinal apoplexy, recorded by Fallot, Leprestre, and others, were sometimes spontaneous, sometimes traumatic. A child seven days old, mentioned by Abercrombie, refused the breast and died convulsed. Here, a coagulum, extending the whole length of the cervical portion, was found between the spine and membranes behind. Hutin describes the sudden death of an old man, who had lain down in good health, in whom two small apoplectic effusions were discovered in the inferior portion of the medulla. Though commonly fatal, perhaps in a few hours, this last has met with apparent cicatrization. Cruveilhier also mentions a medical student who survived a first attack, dying, after five years, of a second. A cicatrix was detected on the left of the medulla; there had been hemiplegia of the same side, which however disappeared before the second attack. Concurrent apoplexy of the brain and spinal marrow has been adverted to by Monod, Yvarin, and Gaultier de Claubry. Paralysis, with involuntary discharge of urine and feces, consequent in these cases, demands much care. The distended esophagus of an ox, covered with wash-leather, and united at the extremities, with other contrivances, is employed to avert the ill effects of pressure. Notwithstanding these measures, I knew an immense slough to form on the spine and sacrum of an old gentleman, the fetid discharge from which, mixed with feces and urine, created a stench that was difficult to support. A plug for the rectum, and a fibula or elasp for the prepuce, under such circumstances, would hardly prove available. At any rate, a square of oiled silk or cotton, laid under the patient, with chlorine washes, are obvious and suitable expedients.

Bony and cartilaginous productions are sometimes met with on the dura mater of the spine. Scoulteten mentions an instance in which one of the dorsal vertebræ was replaced by a tubercle which had compressed the medulla. Petel describes vertebral caries with tuberculous degeneration of the dura mater, communicating with a similar deposit beneath the anterior vertebral ligament. Gendrin thrice detected tubercles; one the size of a bean was in the substance of the medulla, another large as a nut pressed on the cervical portion. Two of these were encysted, the third was surrounded by softened medulla. Colliny found a non-encysted tubercle, big as a pea, in the lumbar portion; and Serres witnessed a chain of tubercles, two inches long, in the same locality. Instances of encephaloid matter, occupying various points of the spinal marrow, in some instances with destruction of the bones and ligaments, are described by Abercrombie, Ollivier, Serres, Wolf, Collin, Hardy, Guersent, Velpeau, and Duplay. In some, a communica-

tion subsisted, with similar morbid masses, extrinsic to the spine; so that it was not clearly apparent in which situation the cancerous mass might have originated. Hutin and Reynaud describe scirrhus in a colloid or gelatinous condition, in the substance of the medulla. Ollivier and others mention hydatids, on the pre-spinal surface of the dura mater, perhaps communicating with similar collections along the side of the spine, in the thorax and abdomen. An instance described by Chaussier occurred in a subject who had laboured under paraplegia. In a similarly fatal case of epilepsy, ensuing apparently after fright, Esquirol discovered hydatids of various dimensions in the arachnoid cavity of the spine. Calmeil speaks of a vast cyst of hydatids in the lumbar portion of the spinal marrow of a sheep. In a very remarkable case by Reydellet, a tumour, subsisting on the loins of a woman, was opened, whereupon great numbers of hydatids were discharged for some days, and the finger being introduced, came in contact with the naked medulla. The patient died, it need scarcely be added, paralysed and exhausted. Cysticerci have also been discovered, but recorded instances are few. Monod speaks of medullary hypertrophy, attended with convulsions and paralysis; atrophy has been adverted to. Cases of numbness, paralysis, and coma, are described, in which, after death, the spinal marrow was found infiltrated with serum; or this was contained in a central canal. Abercrombie mentions effusion, or hydrorachis, extrinsic as regards the dura mater. The dura mater adheres to the foramen magnum; and, during life, the cerebro-rachidian fluid of Cotunnus, as we find by the observations of Magendie, abounds to a greater or less extent, between the dura and pia mater. Congenital hydrorachis, or spina bifida, described by Tulp, Ruysch, Malacarne, and Vrolik, seems to me a mere mechanical result of the cleft spine and absent spinous processes. The membranes and integuments, according to the deficiency, yield in one or more points, most commonly the lumbar region, giving rise to a soft fluctuating tumour, varying in size from a walnut, to the head of an adult, more or less tense, according to the posture of the patient. Otto asserts that the medulla is sometimes wanting; other peculiarities have likewise been observed. The parietes of the tumour when small are healthy; otherwise, they may be red and ulcerated. In one instance, the tenuity was such as to have been compared by Ollivier to a layer of the epiploon. When the parietes burst, or are intentionally opened, the patient promptly expires. A fistulous opening, however, may subsist. Children are sometimes born with cicatrices over the tumour, a circumstance that would imply intra-uterine rupture and cicatrization. The larger the tumour, the earlier the child is apt to die; but some have held out for years; and a few instances are recorded in which pressure, sometimes with acupuncture, has induced subsidence of the parietes and recovery. An umbilicus truss appears to answer best. A girl, treated by Mr. North, was acting as servant maid at the age of twenty. In the case of a child of scrofulous parents, the only one which I can recollect to have come under my observation, the little creature died at the age of three. Paralysis of the bladder, rectum, and inferior extremities, sometimes complicates the disease, which is occasionally combined with chronic hydrocephalus.

IV—NEURITIS, NEURALGIA, TETANUS.

DISEASES of individual nerves, owing alike to their rarity and obscurity, have not been sufficiently studied. It is certain that they are liable to inflammation and other structural changes, entailing functional disorder, more or less analogous to those which ensue in the brain and spinal marrow. Softening, redness, effusion of pus, serum, and blood, have all been noticed. Neuritis may be attended with neuralgia; but the latter commonly ensues without the former. It seems conformable to analogy, as well as borne out by observation, that the neurilemma, or investing membrane, and the nerve itself, may be separately or conjointly inflamed; no symptoms, however, distinguish one from the other. Baron and Ponteau relate instances, in one case of the sciatic nerve, of neuritis, generally from a blow or wrench, mostly relieved by copious leeching. Boerhaave, Nasse, Cotunnus, and more recently Martinet, in his memoir in the *Revue Médicale* for June 1824, have likewise occupied themselves with neuritis. In his fourth, fifth, sixth, and tenth cases, this last writer discovered decided change of structure in the nervous tissue, which had become red, soft, and injected. Dull or lancinating pain, ensuing at intervals, and varying with the affected seat, was an attendant symptom. In some instances, numbness went on to the production of actual paralysis. In one, a prominent, painful cord could be felt in the direction of the ulnar and radial nerves. Ivan, not to adduce an example by Swan, relates hypertrophy of the popliteal nerves consequent on an exquisitely painful fungous ulcer of the leg. Descot found the optic nerve converted into a soft white pulp; Portal and Reil describe inflammation in the cerebral nerves; Breschet and Lobstein in the pneumogastric and trisplanchnic. Neuralgic affections implicate the nerves of the extremities, face, eye, ear, trunk, and viscera. They readily flit from place to place, and are governed by sympathies, which, if they could be fully unravelled, would probably go far to clear up several obscure pathological questions. Occasionally neuralgia, as in certain instances by Piorry, appears to originate from a wound, perhaps after venesection, or a blow; at other times it ensues without any appreciable cause. Mineral poisons, as those of lead and mercury, likewise the pressure of scirrhus, tuberculous, and other tumours, derange or interrupt their influence. In a case of acute sciatica, Bichat found the nerve occupied by a multitude of small varicose dilatations; and Piorry mentions an instance of a woman the victim of unappeasable sciatica, in whom the sciatic plexus was apparently compressed by a mass of tubercles. Ponteau mentions a man in whom intolerable neuralgia occurred after bleeding in the foot. In this case, as in one by Piorry, after opening a vein in the arm, a tumour formed on the affected nerve. Tumours, once termed ganglions, now neuroma, occasionally induce neuralgia. Aronssolm and Descot, in their theses, describe such as varying in size from a pea upwards. Bayle and Cayol esteem them encephaloid. Calmeil found one big as an egg on the first intercostal nerve; and Heinecke describes their joint occurrence on the median and intercostal nerves. Pring removed one large as a pigeon's egg from the arm, which was rendered numb and powerless. Berard saw one the size of a pea in the right diaphragmatic

nerve; the patient during life experienced symptoms resembling angina pectoris. Chaussier found them in the back, Marjolin in the scrotum; and Everard Home removed one, with fatal results, from the axilla. Lastly, we have an instance, by Piorry, of neuroma of the scalp, probably implicating a branch of the fifth pair, attended with acute pain and amaurosis. Carious teeth are a noted source of neuralgia, and probably of local neuritis. A case is recorded by Ollivier and Piorry of a corpulent notary, who complained of acute pain and formication, as when the elbow is struck, running along the whole of the inner portion of the left arm and forearm. There was no remission; exacerbations ensued during the night, and the least pressure proved the source of aggravation. Subsequently, excessive pain ensued concurrently in the heart, which was relieved for a time by the sulphate of quinine; but it was only after extraction of the first molar tooth to the right, which had ached all the time, that the disease disappeared. Mental causes undoubtedly, as we witness in the illusions of the hypochondriacal and insane, exert unquestionable influence. Neuralgia of the mamma, thorax, and abdomen, has been referred by Hall, Griffen, and others, to the spinal marrow. Among other examples, I treated a young lady in whom, besides thoracic neuralgia, pain, which seemed to extend back to the spine, shot down the left side and arm. The spine was painful at one point; but leeches and blistering did no good, till I made the patient resort to horse exercise and the tartrate of iron. Dysmenorrhœa gives rise to pains, which, if not neuralgic, border on neuralgia. Errors of regimen, epicurism, gluttony, and sexual excess, induce acute suffering in particular nerves. Martinet mentions sciatica in a conscript who had made excessive efforts, on foot, to escape the pursuit of some gendarmes. Wilson Philip's observations, as to the influence of the eighth pair on the stomach, and those of Brachet on the functions of the trisplanchnic or sympathetic, are interesting, as regards the question of nervous influence over the abdominal and other viscera. Cases are further recorded by Serres, Berard, and Andral, wherein asthma and neuralgic pains resulted from compression of the pneumogastric or diaphragmatic nerves by scirrhus growths.

Neuralgia of the face has long received the appellation of *tic douloureux*. I had, among others, an obstinate case of facial neuralgia in a habitual drunkard. It came on in periodical paroxysms, and a very slight cause, such as whisking the hand across the face, sufficed to re-ensure an attack. As Scott observes, the disease has been mistaken for toothache, to the great prejudice of the sufferer. He is of opinion that it is confined to nerves of sense; a conclusion which, however probable, it would seem difficult to prove. Facial neuralgia is described as affecting the supra-orbital branch of the fifth pair as it leaves the foramen, involving the globe of the eye, with lachrymation and throbbing; as implicating the infra-orbital branch of the same pair, with twitching and pricking of the lower eyelid, and pain perhaps extending to the cheek, lip, teeth, and tongue; thirdly, as seated in the inferior maxillary branch of the fifth pair, pain commencing at the mental foramen, and extending to the chin, lips, and teeth; lastly, neuralgia of the facial nerve. Jeffries describes an instance of *tic douloureux* of fourteen years' standing, relieved at last by the extraction of a piece of porcelain from the substance of the cheek; and one came under my own observa-

tion, in which neuralgia of the hand and forearm only ceased after extraction of a piece of glass lodged in the hand of a lady, owing to a fall thirty years before. Neuralgia of the sciatic nerve appears, in general, to be a simple case of rheumatism; Carmichael ascribed its origin in himself to derangement of the digestive organs. In fact, this nerve, from its large size and superficial position, is greatly exposed. A lady whom I long attended was a martyr to the disease, and could not bear the slightest touch without screaming out. Here, I conceive, there must have been organic change. Van de Keer, indeed, relates examples in which this nerve was converted into a soft grey or reddish pulp. In some instances, the joint has been the seat of disease. Sciatica is common among all classes, and proves a great scourge to the ill-clad poor. Usually confined to one side, I have observed it in both. The treatment of neuralgia is anything but satisfactory; blisters, veratria, turpentine, and counterirritants, generally, have been used to excess, externally; nareoties, and the carbonate of iron, with a multitude of others, internally. One gentleman, who had long laboured under obstinate neuralgia of the pericranium, was seemingly relieved by the application, at his own request, of a powerful magnet. In another, in whom neuralgia occupied the anterior portion of the thigh, a similar measure was wholly inoperative. A case is related in the Dublin Medical Journal, of the *douloureux* of nine years' standing, permanently relieved by acupuncture. I have tried this remedy perseveringly in sciatic and other forms of neuralgia, without success; but I have effected remarkable recoveries, as regards the former, by means of blisters externally, with large doses of turpentine internally. The acetate or muriate of morphia has been applied with variable success, to the denuded dermis. Section of the affected nerve, irrespective of the probability of inducing paralysis of feeling or motion, is a very uncertain remedy. It has been extensively resorted to in neuralgia of the face, but with very partial success. It is hardly necessary to observe, that in all cases of neuralgia, local sources, such as tumours, neuroma, carious teeth, the presence of foreign bodies, and inflammation, are to be looked after. Any irregularity in the digestive, or other organs, is, at the same time, so far as may be, to be combated.

The fact of the tonic convulsive affection, which we term tetanus, popularly locked-jaw, being an affection of the nerves, is one which admits of no question. Trismus nascentium prevails endemically in two very opposite regions, Iceland and the West Indies, where, by some referred to section of the umbilicus, by others to cold, it is very destructive to the infant population. When the convulsion inclines the patient forward, the term *emprosthotonos* has been employed; *opisthotonos*, if backwards; *pleuristhotonos*, to the one side. *Pleuristhotonos* seldom or never ensues, *emprosthotonos* rarely; but I have twice, in children, seen the flexors and extensors, even to the arms and legs, so equally balanced, that the whole body was rigid and immoveable as a piece of wood. Women being less exposed to bodily injuries than men, are not so frequently subjects of tetanus. Lambs, whose ears have been bored with a rod of hot iron, with the idea of curing them of the rot, are thus attacked. Horses also are very liable; I saw a fine animal affected, after so slight a cause as a small splinter running into his flank whilst passing through a gate. Tetanus is rarely other-

wise than traumatic; but it may ensue in the idiopathic form from the operation of cold. Marshall Hall divides it into centric and eccentric—centric as produced by disease within the spine, eccentric, from lacerated or punctured nerves, possibly gastric derangement, and worms. The local morbid influence, according to this author, is carried by excitor nerves to the spinal axis, thence reflected upon motor nerves. The disease ensues in paroxysms, aggravated in frequency and severity towards the fatal close; otherwise becoming mild and infrequent in the event of a favourable termination. The body is often arched somewhat like a bow. I saw an individual in Stephen's Hospital, the heels and back of whose head, during the paroxysms, appeared to support the frame. The mind is wholly unaffected. In all cases, the bowels become obstinately constipated, frequently with dysuria. A slight cause is sufficient to induce a paroxysm; whereupon the jaws, which even in the intervals are not relaxed, become rigidly closed, deglutition and mastication being alike difficult or impossible. Locked-jaw, by Boyer esteemed pathognomonic of the disease, is sometimes the only symptom which presents itself. Occasionally the tongue is bitten. Parry's prognosis, founded on the rapidity of the pulse, has not, I believe, been confirmed; in fact, the latter is not much affected. The belly feels rigid as a board; and a case occurred to Larrey in which the recti muscles were lacerated. Pain at the bottom of the sternum, extending back to the spine, is perhaps to be ascribed to spasm of the diaphragm; yet, if we admit this condition of the intercostals and diaphragm, death must at once, and probably often does ensue in this very way.

Tetanus is rarely fatal before the lapse of some days; yet a negro, adverted to by Robinson, died in a quarter of an hour after lacerating his thumb with a fragment of china. The longer the patient survives—a week or ten days, the greater the probability of recovery from this cruel disorder. Chronic cases, it appears, have been known; and Cooper relates one in which the patient died after lingering five weeks. In general, the disease does not ensue for some days after the receipt of injury. Wounds of the extremities are oftener productive of it than those in the trunk. In two instances, one by Johnson, the other by Brodie, the spike of a railing wounding the inner plantar nerve, was the source of the first, puncture of the peroneal nerve with a pitchfork, of the second. With the anomalous exception of Iceland, the disease, by the concurrent testimony of surgical writers, appears most frequent and fatal in warm climates; Fourcroy speaks of the difficulty of rearing negro children—*negrillons*, in the plains of St. Domingo. In other respects, tetanus is the scourge of the wounded in ships, hospitals, and camps. Exposure to the cold night air appears the most frequent of the exciting causes. Wounds of every description, whether cleanly incised or lacerated, punctures, pricks, and even dislocations and burns, alike precede the complaint. In other respects, if three weeks elapsed after the receipt of injury, M'Grigor esteemed the patient safe. Descot mentions mortal tetanus after amputation of the thigh, the sciatic nerve, on account of arterial hemorrhage from its vessels, having been included in the ligature. Dissection displayed thickening, with the knot imbedded in the substance of the nerve. The popular belief of the frequency of trismus from wounds of the thenar or hypothenar of the thumb and hand, is probably founded on the greater exposure of these parts to injury.

Treatment of every kind in this complaint is in a manner useless. A few indeed recover, but this result is one on which we can never calculate. Bleeding, purging, opiates, warm and cold baths, mercury, and blisters along the spine, have been carried as far as prudence would warrant. Indeed it is to be feared that this boundary is sometimes passed, as in cases wherein whole drachms, if not ounces of solid opium have been discovered in the stomach. It is curious that the patient, whether man or brute, can bear prodigious doses of this remedy without much, if any, approach to narcotism. Idiopathic cases are much more amenable than traumatic; but if we except infantile trismus, they are infinitely more rare. As the muscular coats of the intestines appear to share in the spasm, the most powerful purgatives are often administered with little or no effect. I have known the bowels, however, to be acted on by croton oil, which, followed by opiates, warm baths, and light nourishment, appeared to effect a cure. Elliotson administered enormous doses of the carbonate of iron. Tobacco clysters have been tried, also strychnia. Local treatment, cauteries, amputation, and the like, seem fruitless. Preventive measures are best; but, unfortunately, they are not always in our power.

V—PARALYSIS.

PARALYSIS implies impairment of muscular motion, sensation, or both; the first, however, is more frequent than the latter. It is usually consequent on acute or chronic disease of the brain, spinal marrow, or nerves; and more especially apoplectic effusion. The disease may ensue suddenly, or come on gradually. Muscular impairment may be complete; more commonly, however, it is otherwise. Sometimes a patient is able to draw the leg about when the arm of the same side hangs motionless. Loss of sensation, very much less frequent than of motion, is attended with the inconvenience of disengaging the individual from guiding his muscular efforts. Thus, a nurse for example, momentarily incurs the risk of dropping the child off her arm, vision proving an imperfect substitute for the absent sense. When feeling disappears, the power of motion generally follows: La Condamine, however, among others, continued to make use of his hands, otherwise destitute of sensibility, for years. In some instances, a large portion, or even the whole of the cutaneous surface, has been known to lose its sensibility. The term hemiplegia is applied to paralysis of one side, paraplegia to paralysis of the lower extremities. The leg of one side, and the arm of the opposite, may be the parts affected. In other respects, paralysis may be partial, confined to a particular muscle or set of muscles. Creeping paralysis refers to one of the modes of its approach, from the extremities up. In a lady labouring under cerebral disease, the toes of the right foot first lost their power, then the foot itself, the leg, lastly the whole side; a process accomplished in about four years, and ending in death. I have seen paraplegia come on in the same insidious manner; in one instance, greatly accelerated by an imprudent marriage. I have, however, known the precursory features of paraplegia last for years, the disease making little progress. Paralysis agitans refers to a peculiar

muscular affection, attended with shaking in the head and limbs of the aged.

It is matter of observation, that paralysed limbs waste; also, that the circulation and temperature languish; results, doubtless, accruing from the diminished motion and lessened sanguineous determination to the part. I have thus found the leg and arm of persons previously robust and vigorous, comparatively soft and spent in the course of a few months. Paralysed limbs, when first affected, are often not much impaired at their extremities; at other times, these are the only parts implicated. Abercrombie mentions a patient who could write, though the arm was paralysed from the elbow to the shoulder; in a few hours, however, the hand became paralytic also. Velpeau relates the case of a soldier who was paralytic from the shoulder to the middle of the forearm; the man recovered. I have met with two or three instances in which the hand could be used for writing and other purposes, though the arm hung down; and I have known individuals who could employ the hand to a considerable extent, though labouring under hemiplegia, or general paralysis. The state of the mind varies considerably. In some, as M. De Saussure, and the late Mr. Galt, not to mention patients of my own, it is unaffected; while others, again, become insane, perhaps idiotic. This condition is sadly aggravated, when, as often happens, the sphincters become relaxed. Calmeil, in the third chapter of his work, *De la Paralyse Considérée chez les Aliénés*, affirms that in general paralysis, the mind, in almost every case, is impaired from the first. In some, he continues, a monomaniacal delirium on the subject of greatness or riches first ensues; then vague wandering, followed by a condition merging into lunacy. I knew an instance of general paralysis, however, without any mental lapse; and very many indeed, of hemiplegia or paraplegia, wherein the mind has not been in the least implicated. It is certainly an affecting circumstance, that intellect—the strongest and brightest, as of a Swift, or a Scott, should give way, and, for the remainder of life, remain utterly prostrate in the wreck of the organization. Two painters, one of them of considerable celebrity, after hemiplegic attacks on the right side, have resumed the practice of their art with the left arm; one of them indeed so successfully, as to have produced a work which must hand down his name to future times. Sometimes the disorder intermits. Hysterie paralysis, lasting for a space, has been witnessed by most practitioners. Paludal fever may commence with coma, or even wear the aspect of paralysis. Elliotson mentions hemiplegia coming on every third day at ten o'clock, and which he removed by fifteen grain doses of quinine. Such cases, as well as those arising from the poison of lead or mercury, venereal excess, and even drunkenness, would seem to countenance the possible production of paralysis, apart from structural disease of the cerebrum or medulla. Women, doubtless from their inferior liability to apoplexy, less frequently incur paralysis. I have had several cases in the sex, however, though mostly among those who were advanced in years. I have also witnessed repeated instances of paraplegia in children, often, though not always, ascribable to falls and blows on the spine. In two instances, the patients were able to walk a little. Children, however, are liable to local paralysis, from cerebral or spinal disease, in the toes, hand, fingers, tongue, which may prove the precursor of general para-

lysis, or spread no farther. I have had several cases, rarely intractable, arising from local encephalitis in over-fed children, in which the mouth and features were drawn to one side.

Paralysis, whether partial or general, ensues after the morbid changes already specified; yet such, effusion even among the rest, have been known to occur without consequent loss of sense or motion. Andral, Bretonneau, Ollivier, and Bright, furthermore, describe symptoms akin to those of paralysis, without any appreciable alteration adequate to account for them. A woman, says Abercrombie, experienced numbness, ending in spasmodic motions and partial paralysis, extending over the left hand and arm. These, after some weeks, were restored; then those on the other side became implicated with a similar result; lastly, the lower extremities with complete paraplegia, requiring the use of the catheter, gangrene of the sacrum and tops of the thighs. No disease could be found in the brain or spinal marrow; the cauda equina, however, was of a dark colour, which might have arisen from the contiguous eschar. Two other cases of paraplegia, and one of imperfect paralysis, with convulsive motions of the upper extremities, without a vestige of discoverable disease in the brain or spinal marrow, are detailed. Paraplegia is more frequently consequent, ten or twelve times as often, Elliotson affirms, on disease or injury of the spinal marrow than of the brain. An important feature, owing to decussation of the cerebral fibres, is the occurrence of paralysis on the side opposite the hemorrhagic effusion. In a few instances, the eye seems implicated on the affected side. When the spinal marrow, and occasionally the cerebellum, are the parts engaged, paralysis, in a very few instances by Valsalva, Morgagni, and Brunner, appears to have ensued on the side of the effusion. Direct paralysis has been oftenest observed in chronic affections, softening, and others. Should effusion subsist on both sides, the paralysis is generally opposite the largest deposit. Serres, Foville, and Pinel-Grandchamp, have asserted that lesions of the corpus striatum induce paralysis of the leg, of the optic thalamus paralysis of the arm, and that hemiplegia results from both. Paralysis of the tongue has been ascribed by Bouillaud to lesion of the anterior lobe; by others, with equal improbability, to alteration in the cornu Ammonis. In fact, as Rochoux observes, paralysis of the upper and lower extremities is daily witnessed in cases in which these parts of the brain are not implicated; while hemorrhage of one or other may ensue, when sometimes a leg, sometimes an arm, is the paralysed portion. It cannot even be said which, the cerebrum or cerebellum, is the part affected; and Bayle goes so far as to mention effusion into the middle lobe of the cerebellum, without any paralysis at all.

Foville, in the seventh volume of the *Dictionnaire de Médecine et Chirurgie Pratiques*, has constructed tables wherein functional lesions, and the structural changes productive of them, are severally laid down. The first table concerns hemorrhagic effusion into the hemisphere, corpus striatum, and optic thalamus. The first case by Rostan, after former apoplexy, was marked by coma and hemiplegia to the right, followed by death in five days, with effusion in the centrum ovale; in the second, by the same, there were cerebral congestion and insensibility, with hemiplegia to the right, also effusion into the left corpus striatum; in the third, by Ferrus, cerebral congestion, insensibility,

hemiplegia to the right, and death in five days, with effusion in the left optic thalamus; in the fourth, by Rostan, insensibility, paralysis in the right arm, with effusion in the left thalamus; in the fifth, by Ferrus, paralysis in the right arm, numbness in the right leg, death in seven days, and effusion in the left thalamus; in the sixth, by Rostan, insensibility and hemiplegia to the left, in a lunatic, with effusion in the posterior portion of the right hemisphere; and, in the seventh, sudden cephalalgia to the right, paralysis of the left leg, then of the left arm, death in four days, and effusion in the right corpus striatum. The second table comprises effusions, primitively in the substance of the hemisphere, and bursting into the ventricles. The first case, by Rostan, presented insensibility, with alternate contraction and torpor of the extremities, lasting forty-seven hours, and hemorrhagic effusion into the ventricles, apparently derived from the lacerated corpus striatum; in the second, by Morgagni, there were paralysis on both sides, with considerable effusion into the left hemisphere, penetrating as far as the ventricles; in the third, by Rostan, insensibility and immoveability, death in two days, and effusion into the right hemisphere, communicating with the ventricles; in the fourth, by Rostan, coma, death in one day, destruction of the left thalamus and corpus striatum, effusion communicating with the ventricles; in the fifth, by the same, numbness in the right arm, which the patient says she feels dying, loss of sense and motion, death in four hours, and destruction of the left thalamus by effusion extending to the ventricle; in the sixth, by Ferrus, long-standing hemiplegia to the right, sudden loss of consciousness, complete paralysis of the left arm, right arm and both legs bent, death in two days, with effusion into the right thalamus and ventricle; in the seventh, also by Ferrus, cephalalgia, delirium, partial aphonia, hemiplegia, death in four days, and effusion in the right ventricle, with destruction of the middle and posterior lobes; in the eighth, by Morgagni, vertigo, vomiting, insensibility, hemiplegia to the left, in ten days death, with two ounces of blood in the right ventricle; in the ninth, by the same, paralysis of the left side and right arm, in nine hours death, with alteration of the right corpus striatum and optic thalamus, also of the left optic thalamus; in the tenth, also by Morgagni, after insolation and a ery of terror, hemiplegia to the left, death in twelve hours, with effusion into the right ventricle; and in the eleventh, by the same, after prolonged hemiplegia of the right side, there was a cicatrix in the inferior portion of the left ventricle. The third table refers to effusions of blood in the cortical substance escaping to the surface of the brain. In the first case, by Rostan, vertigo and delirium were followed by hemiplegia, coma, and death in three days, with effusion of about two ounces of blood between the cortical and white substance, outside the right hemisphere; in the second, a protracted case, by the same, contraction of the right arm, vertigo, wandering, and imperfect paraplegia, limited effusion into the cortical substance of the left side, with cancer of the left thalamus; in the third, by Ferrus, mental imbecility for eight years, sudden coma, with hemiplegia of the right side, dissipated in one day, delirium, death in a month, and bloody effusion under the cortical substance communicating with the surface of the brain; in the next, by the same, mental alienation, insensibility, coma, spasmodic motions over the whole body, habitual contraction of the right side, death in twenty-

nine days, with superficial effusion coming from the middle lobe; in the last, by Esquirol, fatuity, paralysis of both legs, death in three months, and effusion under the cortical substance, with a cancerous tumour the size of an egg, traversing the two anterior lobes. The fourth table refers to effusions primitively hemispheric, secondarily in the ventricles and on the exterior of the brain. In the first, by Morgagni, sudden loss of consciousness, fall on the left side, death in six hours, and effusion in the left hemisphere, communicating with the ventricles and surface; in the second, by Ferrus, violent cephalalgia, numbness of the extremities, and contraction of the right arm, aphonia, insensibility, and vast effusion in the middle and posterior lobes, communicating with the left ventricle and surface; and in the third, by Rostan, coma, death in two days, enormous effusion in the left hemisphere, communicating, at once, with the ventricles and surface. The fifth table concerns superficial effusions, not implicating the substance of the brain. In the first, by Ferrus, cephalalgia, vomiting, insensibility, paralysis of the tongue, were followed by death in two days, with effusion towards the base of the brain and fissure of Sylvius; in the second, by Rochoux, sudden death in the act of coition, abundant effusion on the surface of the brain; in the third, by Morgagni, coma and death in fifteen minutes, with effusion on the pia mater; in the fourth, by the same, violent cephalalgia, coma, loss of feeling in the back, and effusion, compressing the cerebellum; in the fifth, by the same, pain in the head, coma, death in nine days, rupture of the carotid, and bloody clots round the medulla oblongata; in the sixth, by Rostan, previous hemiplegia, sudden insensibility, death in two days, with superficial effusion; in the seventh, by Morgagni, stupor, hemiplegia to the left, death in four days, and effusion on the right hemisphere; in the eighth, by Rostan, vomiting, cephalalgia, sudden cry, hands raised to the head, death within three hours, and effusion under the arachnoid towards the base; in the next, by the same, senile imbecility, hemiplegia to the right, death in five days, with effusion between the dura mater and arachnoid. The sixth table relates to effusion in the pons Varolii or annular protuberance over the medulla oblongata, which unites the hemispheres. In the first case, by Ferrus, old standing hemiplegia on the right side was followed by stupor, coma, and death in forty-eight hours; in the next two, by the same, relaxation of all the limbs, vomiting, loss of speech and motion, and death after from twelve to nineteen hours; in the last, by Berard, there were acute pain, coma, and death in five hours. The seventh and last table relates to ten cases of softening, all by the foregoing authors, except one by Saucerotte. The symptoms were hemiplegia, paralysis of an arm or leg on the opposite side; in some cases, delirium or acute pains in the head, followed by death in from five days to as many weeks. The softening was seated sometimes in the left hemisphere, occasionally in the right; while, in some cases, the cortical, in others the medullary substance, one or both, was implicated. In one instance, the cerebellum was affected; in two, the membranes, inclusive.

Sanguineous effusion, softening, cancerous and tuberculous masses, tumours, hydatids, and chronic inflammation, are all productive of paralysis. Rullier and Magendie mention a curious case of medullary softening, to the extent of several inches, wherein the upper extremities, indeed, were deprived of motion, but not of feeling, the lower extremi-

ties being in no wise affected. The brain being so much oftener engaged than the spinal marrow, explains, in part, the greater frequency of hemiplegia, the semisideratio of old writers, than of paraplegia. Concussion, whether of the brain or spinal marrow, kicks, blows, wounds, bruises, falls, may induce paralysis. Abercrombie mentions paraplegia from so simple a cause as leaping over a wall; and an injury, apparently trifling at the time, has sufficed to occasion serious, eventually fatal disease. Falls on the sacrum have been known to induce paralysis. A gentleman whom I treated for imperfect paraplegia and eventual inability to pass water without the catheter, appeared to contract the disorder from a fall on his back, to which, at the time, no importance was attached. Death was preceded by intermittent pulse and convulsive paroxysms, bordering on epilepsy. Charles Bell speaks of a person who incurred paraplegia, owing to a blow from the corner of a table. Section, rupture, or crushing of the spinal marrow in the vicinity of the pneumo-gastric nerves, may entail paralysis of the four extremities, cessation of respiration, and death by asphyxia. It is not enough that the origins of the intercostal, phrenic, external respiratory, and spinal nerves remain untouched, the communication with the fountain of nervous power—the encephalon, being cut off, the patient expires. Should this, however, continue to subsist, although imperfectly, respiration becomes diaphragmatic, with dying voice, paralysed sphincters and extremities. Ollivier passes the interesting remark, that, as the nerves which supply the inferior extremities sometimes take their origin very high up, wounds and other injuries in the lower portion of the spinal marrow, ordinarily productive of paraplegia, cease to be so in this instance. Elliotson mentions the occurrence of paraplegia in a man, from working in a wet ditch. The same writer adverts to paralysis of the lower extremities, in which the only discoverable lesion was a tubercle in the centre of the spinal marrow. Gendrin describes atrophy of the muscular structures of the tongue, pharynx, and larynx on the left side; also aphonia and dysphagia in a case which, from the pain and stiffness in the posterior part of the neck, and inability to raise the head, had been referred to caries of the atlas or axis. A cyst, containing six hydatids, was attached to the left posterior portion of the cerebellum, just at the bulb or origin of the spinal marrow, compressing and atrophying the glosso-pharyngeal nerve. In the *Leçons orales* of Dupuytren, also, palsy confined to one side of the tongue is said to have arisen from pressure of a hydatid on the ninth nerve. Ptosis, or blepharoptosis, the patient being unable to lift the eyelid, may prove the result of cerebral disease, in some instances, of tumours in the orbit. Lagophthalmia, oculus leporinus, the patient being unable to close the eyelids, while the eye, from absence of the usual pressure, projects, may be owing to disease of the portio dura; otherwise, the portion of brain, lesions of which induce blindness, deafness, loss of smell and taste, is unknown. In partial paralysis from lead, described by Tanquerel de Planches, the extensors are most commonly affected; hence the hand remains half flexed on the arm. It is said by Mérat and Chomel to be infrequent when the preliminary colic has been submitted to active purgative treatment. I have before adverted to a poor man, who, though able to hold the brush in his right hand, was obliged to move it up and down with the left. Bright relates the case of a woman, who, as the flexors re-

tained their power, could support her child as usual. Healy describes paralysis of the arm, coming on in the course of a night, and yielding to electricity. I knew an instance of paralysis of the deltoid thus ensuing. Darwall has ascribed this affection to raising heavy weights: I certainly met with it twice in cooks who had to lift pots on and off the fire; but in two other instances there had been no unusual effort. In a case of paralysis of the forearm, in one whom I often see, the disease arose, in America, from a fall off a ladder, on the elbow. The arm is not affected, and the man can move his fingers. Gendrin mentions paralysis of the serratus magnus with projection of the scapula, which, by one practitioner, had been referred to dorsal caries, by another to spinal curvature. A succession of blisters, for six weeks, to the back and shoulders, removed the complaint. Bright describes paralysis of the forearm from pressure induced by a fracture, while Abercrombie adverts to two instances in which temporary pressure on the nerve gave rise to paralysis, which, in one of the cases, did not go off for months, while, in the other, it was permanent. Paralysis, by the last writer, along with Wells and Storer, has been occasionally referred to the state of the circulation in the affected parts; but the fatal complexion of the cases would seem clearly indicative of central lesion.

In paralysis from local affections of the nerves, it is not easy to determine the exact condition of the latter. Structural degeneration, inflammatory or otherwise, doubtless, occasionally supervenes; there may be pressure from contiguous tumours, and, to coin a new term, aneuria, without organic change. An important fact, as connected with the researches of Charles Bell, more recently Shaw, Magendie, and others, is, that the mouth may be twisted, the eyes and tongue affected, apart from cerebral disease. Occasionally, however, circumscribed cerebral disorder manifests itself, in the first instance at least, by local affections of particular nerves. In a case by Gendrin, disease seemed limited to the origin of the third pair or *motores oculorum*, on the left side; afterwards it extended to a great portion of the middle lobes and peduncles. In nine months, inability to raise the left eyelid and paralysis of the iris were the only results; headache, fever, convulsions, and intellectual impairment being, for that period, absent. In other respects, exposure to cold—sitting at open windows, and the like, induces attacks of local paralysis, the *portio dura* of the seventh, and perhaps the motor branches of the fifth, being the nerves implicated. In a curious instance of paralysis of one side of the face, described by Brodie, a blow on the cheek was the exciting cause. The effects seemed analogous to those of concussion in the brain and spinal marrow; the patient recovered in three months. Paralysis of the right side of the face and deafness ensued, owing to a fall from a scaffold, in a man mentioned by John Shaw; here the *portio dura* and *portio mollis* were, doubtless, both affected, in which case the probability of cerebral complication is increased. Insensibility of the face implies some impairment in the branches of the fifth, which supply it. It is obvious, however, that similar results may ensue, whether the nerve be affected at its origin or during its course; and that the diagnosis can only be made out by concomitant lesions in other parts, or obvious signs of encephalic disease. Abercrombie mentions a case by Dr. James Gregory, of caries of the temporal bone, with loss of hearing and paralysis of the right side of the

face, the masseter and temporal muscles excepted, from the blow of a stone. In another, from Christison, a man complaining of acute pain in the left temple, grew deaf in the left ear, and squinted with the left eye, followed by paraplegia. The portio dura seemed smaller than usual, the portio mollis was softened, a tubercle the size of a bean being found in the right hemisphere, and a small cyst in the corpus striatum; there was no disease in the spinal canal. Facial paralysis of the new-born, owing to pressure of the forceps during difficult labours on the seventh pair, made the subject of a thesis by Landouzy, was first mentioned by Dubois. A young lady had a distinct twist on one side the mouth when she smiled, the eyelid also was impaired; here, according to Mr. Shaw, the portio dura was affected in the space below the molar teeth. In the case of a little girl, by the same observer, the right side of the face and cheek was unmoved while she laughed; the muscles on the left side, however, were duly agitated. Some branches of the portio dura being cut during the removal of a tumour from before the ear, the child, who was the subject of the operation, called out that she could not shut her eye. Inflammation of the parotid gland has been said to induce paralysis of the muscles supplied by the portio dura. A person, whose case is recorded by Charles Bell, had the branch of the fifth, which passes along the lower jaw, injured during the extraction of one of the molar teeth, whereupon the feeling of one-half the lip was entirely lost, the individual complaining that a broken glass had been given him to rinse his mouth. A patient of Alison lost sensation in the left side of the nostril, face, and tongue; the ball of the left eye was insensible, and at length the cornea inflamed and sloughed. The fifth nerve behind the ganglion was dense, but after this, was wasted, so that at its junction with the tuber annulare, nothing but the membrane seemed to remain. In a case under Mr. Stanley, sensation and motion in the left side of the face were lost; sensation only was impaired in the left side of the tongue; hemiplegia, bloody discharge from the nostril, opacity and ulceration of the cornea, with deafness, erysipelas, and cephalalgia, preceded death. Here a tumour, the size of a walnut, on the left side of the tuber annulare, was found pressing against the origin of the fifth and seventh nerves.

The prospect in paralysis is sufficiently indifferent. Should the patient survive long enough, the clot may be absorbed, and the brain possibly resume its lost or impaired functions. Paralysis, from inflammation, may subside, when the latter is subdued. Extravasated blood and collections of pus have been removed by the trephine, but the issue is very uncertain. A few, as Calmeil observes, who seemed condemned to certain death, have been known to improve rapidly, so as to regain the use of their legs and resume business; others rally slowly, but completely, perhaps to a certain extent only, so as not to be disabled from some degree of exertion. Traumatic paralysis, from falls, wounds, blows, may, under favourable circumstances, be alleviated or removed by measures adapted to the nature of the casualty. It has been conjectured, in cases of effusion, that recovery is coincident with absorption of the coagulum. Here treatment, perchance, may exert some efficacy; but, in the great majority of instances, when the disease does not spontaneously subside, it pursues its course despite of remedial interference. A case is related by Abercrombie, and another by Russel,

of sudden recovery, preceded by convulsions in the affected part. Strong mental impressions, terror, anger, and the like, have, in a very few instances, ended in recovery; and one or two are related in which lightning proved the remedial agent. Electricity and counterirritation have, at any rate, been successful in paralysis of the deltoid; electro-puncture, in some instances, might possibly be advantageous. Falconer mentions a child who recovered from pallor and emaciation of one side, by having recourse to the warm douche. In a case of paraplegia, by Jebb, produced by the blow of a stone on the spine, the disease yielded, in three months, to issues. Cupping, setons, issues, and antimonial pustulation, vesication, likewise, and the irritation produced by mezereon or cowhage, have all been employed by myself and others, too often with little or no effect. Calmeil, in addition, tried moxas and even the actual cautery, over the occipital bone on the nape; Prichard, a row of peas in an incision over the sagittal suture. In case of divided nerves, a sufficient interval must be allowed for their reunion. Cruickshank divided the pneumo-gastric, or par vagum, on each side, in a dog, and the animal did well; but, when this was done in immediate succession, the creature perished. Hourteloup and Lenoir, along with tumours, removed portions, most probably out of the thickness of the ulnar and median nerves, the parts which they supplied continuing to retain sensibility and muscular power. In Swan's experiments, when the nervi vagi were divided on both sides in the dog, death was preceded by inflammation of the lungs and pleura; otherwise, the nerves, when divided, in horses and rabbits, were found to resume their functions in a month or six weeks. Morgagni, indeed, relates an instance of recovery, from paralysis induced by a stab in the spine, indicating reunion of the medulla; others are recorded by Ollivier; but the inflammation and other concomitant lesions are very apt to induce a fatal termination.

In a case of general paralysis, veratria, rubbed up with lard, at the instance of Astley Cooper and Johnston, was fully tried by inunction over the spine, but without any effect. In a couple or three instances, hospital practice, I have found strychnia, beginning with the tenth of a grain, apparently useful in paraplegic cases. One of the parties, an auctioneer, who could not stand up when brought in, was able to resume his business. I have tried it, however, in many other cases, internally as well as after the endermic method, so as to occasion the peculiar spasmodic twitching which it induces, but without the least appreciable good effects. I found the cold shower bath of considerable advantage in a case of imperfect paraplegia, enabling the patient to attend to his affairs for years. Paraplegia from disease in the medulla, everything else alike, I should consider more amenable than when the cause is seated in the brain. In the latter case, the mind is apt to participate; and I have known instances in which all the extremities were implicated, with relaxation of the sphincters, idiotcy, wailing, and utter prostration before death. It is, however, often difficult to say which, the brain or spinal marrow, is the part engaged. Sometimes both seem implicated; and it has happened, during the life of the individual, that there was no salient evidence, further than the paralysis itself, of disease in either.

Abernethy relates some cases of paralysis, which he ascribes to hepatic derangement. The first of these was that of a young lady con-

finned six months to her chamber, on account of lumbar pains and weakness in the lower extremities, preventing her from standing or walking. Issues had been kept open a year and half, without relief, on each side the spine. These were discontinued, mild mercurials and aperients exhibited, by which, along with other means, her health was materially restored, and she was able to walk about, well as ever. In the next, a man of twenty-three entered St. Bartholomew's, for palsy coming on with twitchings in the limbs, confused vision, and violent pain in the head. The urine flowed involuntarily, and muscular power of the upper extremities was greatly impaired. Calomel and rhubarb, with infusion of gentian and senna, improved the appetite; and the patient came to use his hands and arms nearly as well as before. Sight and speech grew better; the urine was retained, but the paraplegia remained. Here the upper lumbar and lower dorsal vertebræ were so curved as to lead to a suspicion of the bones being diseased. The third case was that of a paraplegic girl admitted into the same establishment. She was subject to diarrhœa, and, when labouring under it, was always better. This girl remained seven weeks in hospital, then dying of fever; but it is not averred that she was benefited. The brain and vertebræ were sound, but the spinal canal was not examined. A case was related to me of a gentleman of twenty, who laboured under constant headache, involuntary twitchings, with violent and incontrollable muscular contractions in the right arm and leg, impaired vision, speech, and memory. What with stammering and inability to recall the proper words, the patient could seldom finish a sentence, he also broke out into frequent fits of involuntary laughter. The right arm hung listlessly by his side; and the right leg dragged in walking. Calomel at night, followed by infusion of quassia and rhubarb in the morning, improved the general health; while, after the application, thrice running, of blisters on each side the second dorsal vertebra, which felt a little tender, vision was improved, speech, voluntary motion, and memory, being alike restored. I saw the individual since, and was in communication with the practitioner during the progress of the case.

VI—EPILEPSY, FALLING SICKNESS.

THE nervous system is, doubtless, implicated in this disease; but the how and the why too often lie hidden in deepest obscurity. A man in the apparent enjoyment of health, suddenly utters a loud cry, and becomes insensible to every passing occurrence; the operation of the senses, the moral and intellectual faculties, are alike suspended, and he falls to the ground, or is supported by those around, making a howling, gibbering noise, the limbs contracted, the eyes staring, the features frightfully distorted, the mouth frothing, the tongue perhaps lacerated, and thrust through the teeth. The fit varies in duration; and the patient either recovers at once, or not till after the occurrence, more or less prolonged, of stupor, verging on coma, finally lapsing into deep sleep. Of the several reasons given by Aretæus for the term *morbis sacer*, *ἱερὴν παθῆναι*, once applied to the disease, the most reasonable is that which makes it depend on its magnitude—*μέγεθος τοῦ κακοῦ*. In

other respects, he observes, that when it commences early, it sometimes disappears with the flower of youth; but, if deep-rooted, persists till death—*ἀλλὰ ξυμβιοῖ μέσφι θανάτου.*

Occasionally, epilepsy is preceded by certain premonitory signs, as ringing and confusion in the head—sometimes the sensation as if a kind of aura were extending, commonly from the extremities, in the direction of the sensorium. Esquirol, indeed, divides epilepsy into two great sections, one in which the head is the point of departure, and in which there is no aura; the other, in which the point of departure resides in other organs. Hall conceives that one form of epilepsy, which he terms eccentric, takes its origin in the excitor nerves of the true spinal system; and considers the distorted prominent eyeball, the expiratory efforts which suffuse the countenance, and probably congest the brain, the thrusting out of the tongue by the *genio-glossi* muscles, rendering it liable to be bitten by the action of the *masseters*, as so many evidences of this view. Esquirol cites a case in which the accession was preceded by pain in the little finger of the left hand. Hollerius saw the disease commence by the shoulder; Donatus, by the nipple in a nun; Maisonneuve, by the arm; Fernelius, by the crown of the head; Vigué de Rouen, by an icy coldness in the forehead. In a young woman whom I attended, the peculiar sensation termed aura, commenced in the left mamma; in another young person of the sex, the leg was the point of departure. I have seen it come on after walking in the morning, the party receiving no warning of any kind. The wife of this person, a very intelligent woman, was aware of a certain incoherence of manner, which however ensued once or twice without further mischief. It has been stated, that the patient, during the insult, was conscious of his or her situation; an assertion which is altogether incorrect. In some cases there is expulsion of the contents of the bladder and rectum, as I have witnessed, and as mentioned by Aretæus long ago—*ἐπὶ ἀφόδῳ καὶ οὐροῖσι καὶ αὐτομάτῳ κοιλίῃ.* Seminal evacuations even have been said to ensue. The disease, or at any rate, a similar affection, may subsist in a much more mitigated form, with brief interruption of consciousness, and no convulsion. Sometimes this is so slight as hardly, if at all, to be noticed by the by-standers; and on recovering, the individual pursues his avocations as before. A young lady whom I attend, and in whom the disease is otherwise obstinate enough, coming on perhaps without any appreciable exciting cause once or twice a week, falls without any working or contortions; at other times, she does not lose the erect posture; the loss of consciousness, however, for the time, is perfect. Indeed, the disease varies from the slight form just spoken of, to the most severe aspect in which it is ever witnessed. In one instance in which my patient, an adult man, was so fortunate as to recover, the disease, commencing with a sort of howl, long-continued stupor and two accessions in one day, became gradually milder and milder, so as eventually to induce little uneasiness to the friends, or interruption to the individual's pursuits. The pulse in robust plethoric persons becomes hard and full, the face red and vultuous; at other times, I have met with an intermitting pulse and pale countenance. Intervals between the attacks, even in the same individual, are extremely variable; days, weeks, months, and even years, may intervene. A good deal, of course, will depend on the frequency and intensity,

whether latent or apparent, of the exciting cause. Habit has a good deal to do in this matter, as also regimen; and, it may be, the treatment undergone by the patient. Drunkards are frequently and severely attacked, as also great eaters; and the epileptic are often prone to excess in eating and drinking. Epileptic persons, in many cases, acquire a dull besotted aspect; some, as I have known, become insane and even idiotic — ὑποτείνεται δὲ καὶ τὴν διάνοιαν ἐ νοῦσος, ὡς τὰ πάντα μωραίνειν, observes Aretæus. On the other hand, epilepsy is apt to supervene in the insane and idiotic. In two hundred and eighty-nine epileptic patients in the Salpêtrière, in 1813, Esquirol noted eighty maniacs, and fifty-six idiots. In 1822, again, the same writer observes, that of three hundred and thirty-nine epileptic subjects, two were monomaniacal, sixty-four maniacal, one hundred and forty-five fatuous, and eight idiotic. Fifty retained reason, but their memory was bad, and they sometimes wandered a little; while sixty presented no mental aberration, except indeed that they were obstinate, capricious, and irascible. Calmeil mentions the more frequent association of epilepsy with dementia or idiocy than with ordinary insanity; when insanity is recent, however, and the epilepsy disappears, the patient perhaps slowly regains reason. Persons who contract epilepsy at an advanced period of life are less apt to lapse into mental alienation, and conversely; a great deal, however, depends on the frequency and severity of the attacks, the habits of the patient, and the presence of organic lesions. There are several recorded instances of persons of high endowments being the subjects of epilepsy; nor has it appeared that the disease in such, temporary suspension of the faculties excepted, interfered with the exercise of their moral and intellectual powers. Patients have sometimes, though rarely, been carried off, possibly from asphyxia, induced by closure of the glottis, during the acme of the attack. A man who laboured under the most violent and inveterate epilepsy I ever witnessed, sank under epidemic cholera; and patients of course are liable to be carried off by inflammatory and other concomitant affections.

Bouchet and Cazauvielh, from repeated examinations, are of opinion that epilepsy is the result of chronic inflammation of the grey or cinerous portion of the brain; epileptics, however, pass long years without a trace of this or any other morbid lesion. It might be matter for inquiry how far the increased pressure and cerebral determination to which epileptics are subject, might prove productive of organic change. As the disease, however, is often combined with mania and fatuity, it will, in such cases, display the concomitant lesions evinced in the latter. In a few instances, a bony tumour, cancerous mass, or tubercle, may be detected; but, in others, perhaps the majority, nothing of the kind is discoverable. Epilepsy has been distinguished into idiopathic and sympathetic; but as this distinction for the most part is difficult or impossible to establish, Piso or Lepois, and Georget, deny its reality. Sthenic and asthenic epilepsy, from cerebral or medullary disease, has also been admitted. Joseph Frank, indeed, speaks of traumatic, inflammatory, rheumatismal, metastatic, arthritic, masked, intermittent, carcinomatous, scrofulous, rachitic, syphilitic, and complicated epilepsy. Some have asserted its greater frequency in scrofulous subjects; but if this be so, it is simply because scrofula itself is frequent. In other respects, it occurs at different ages and in different temperaments; I

have met with it more than once in young persons of both sexes, occasionally in children of from ten to twelve years of age. Hysterical paroxysms, however, are sometimes mistaken for the disorder. According to Bouchet and Cazauvielh, indeed, it oftener commences before than after puberty. As patients advance towards the prime of life, attacks grow frequent; as this recedes, however, they become less so. The occasional hereditariness of epilepsy seems unquestionable; but I have witnessed it in those whose parents were exempt, as I have known the offspring of epileptic parents perfectly healthy. Indeed, it rarely happens, that more than one person in a family contracts the disorder; instances to the contrary, however, are adduced by different writers. The authors last-named aver, that of a hundred and thirty epileptic females, ninety-nine were children of persons exempt from nervous affections; but that the predecessors of the remainder were imbecile, hysterical, or epileptic. Fright, anger, terror, and intemperance, have occasioned the disease in persons who never experienced it before; exciting causes, however, will doubtless be more efficient in the predisposed. Children have become epileptic and even fatuous from early frights. Maisonneuve mentions a girl of nine, who, after looking at the sun, fancied she could discern a great black head which frightened her so much, that relating the circumstance to her mother at night, she became epileptic forthwith. There are also one or two instances on record in which a bright light, the aspect of the sun or other luminous body, reproduced the complaint. The puerperal condition sometimes proves a strongly exciting cause in what is termed eclampsia, a disease in all respects the counterpart of epilepsy, and of which I have had occasion to witness some striking instances in the Dublin Lying-in Hospital. It does not generally persist afterwards, but I have known it to become habitual—absolute fatuity supervening at last. Women even have been delivered unconsciously, during the sopor which succeeds. Eclampsia is sometimes attended with rupture of the uterus; Malacarne and Hamilton both relate instances. Half the cases in the *Maternité*, according to La Chapelle and Velpeau, prove fatal. The term infantile eclampsia has been bestowed on convulsions ensuing during dentition, separation of the umbilical cord, and perhaps without any appreciable cause. I have met with some well-marked cases in little girls, generally of full habit and liable to cerebral determination. What are popularly termed inward fits, display somewhat of this character: I saw a very young child, in whom their repeated supervision led at last to asphyxia and death. In one, attacks were readily induced by derangement of the bowels from indigestible food. The excessive perturbation, induced by the very aspect of epilepsy, has been known to occasion it in nervous individuals. Most have heard of the convulsionaries of St. Medardus; as well as of the doings on the occasion of the persecution and juridical murder of Urbain Grandier, in France. Renal calculi, tape worms, and lumbrici, appear in a few instances to have proved exciting causes. Tumours on the nerves have been known to cause epilepsy; Aronssohn avers its production from neuroma. A case is mentioned in the *Edinburgh Medical Essays and Observations*, in which epilepsy of twelve years standing, was induced by a growth the size of a large pea, on the nerve supplying the *gastrocnemius externus*: with its ablation the disease ceased. A very similar occurrence

is related by Vic d' Azyr. It is possible, indeed, the cause being removed, that the effect—the disease namely, may engraft itself on the constitution, and recur periodically. A young gentleman, in whose family I attended, experienced a fall, with fracture and depression of the ribs on the left side. Pressure in this situation, accidental or otherwise, mostly induced an epileptic attack. One day, I mention it in illustration, his mother unwittingly placed her hand on the affected side, in order to adjust the folds of a coat which was trying on, when a paroxysm ensued on the spot. Mr. Crampton of Dublin, who, on being consulted, thought the great sympathetic might be implicated, verified the production of the disease in this manner; but this was a privilege which I did not care to ask. The patient's memory and other faculties became slightly impaired before death, which took place at night.

The shriek, or rather yell, with which epilepsy often commences, the sudden and complete lapse of consciousness, convulsed limbs, livid and distorted features, the hissing and protruded tongue, the gibber and slaver which attend it, are common to no other disease. I cannot agree with Rostan, an error held by some others, that epilepsy and hysteria are convertible. Convulsions, when they ensue in hysteria, are of a clonic or alternating character; whereas, in epilepsy, they are tonic. The patient in hysteria is rarely unconscious; whereas in epilepsy he is always so. It is, however, seeing its great frequency, possible that hysteria may ensue in epileptic subjects, and conversely; but I entirely disclaim their identity, or even analogy. In other respects, hysteria is almost entirely confined to women; whereas, epilepsy extends to both sexes. The convulsive affections of childhood sometimes border so closely on epilepsy, that the diagnosis is not easily established. I witnessed, in a young subject, convulsive protrusion of the ball of one eye, winking of the eyelid, and drawing aside of the corner of the mouth, synchronous with automatic motions in one arm and leg; the whole as regularly as if it had been the result of artificial mechanism. After two, three, or four hours, these would subside, the patient fall asleep, and waken unconscious of having experienced indisposition. In another case, convulsions, followed by coma of some hours' duration, ensued, the patient recovering and seeming well as before. Malingerers and strolling impostors counterfeit epilepsy with studied accuracy. It has been proposed to place suspected persons on the margin of a table or piece of water; but then, if the disease were not simulated? A practitioner once put a vagabond to flight in Paris, by furtively setting fire to the straw on which he was enacting his imposture.

Sleep-walking, that singular condition in which some of the organs of relation, and, to a certain extent, the mind, appear liberated from the trammels of sleep, has nothing in common with epilepsy. Artificial somnambulism, induced by what is termed animal magnetism, or Mesmerism, is simply imposture or delusion. Incubus, or nightmaro, has been compared without any propriety to epilepsy. In this curious affection, the patient, though asleep, is partly conscious; his limbs are as if chained, but if he can succeed in moving, were it only his little finger, the misery vanishes, possibly however to return once or oftener through the night. It more readily ensues when lying on the back than the sides. Indigestion is a frequent source; raw bacon, it is alleged, will certainly produce it. Elliotson mentions that he invariably

experienced incubus when he slept in a certain house in the country. Its proximate causes are unknown. Incubus may ensue in the daytime, and in such case has been termed day-mare. Macnish mentions having had it in this form. Incubus and succubus are terms once indicative of monstrous credences, in a superstition now passed away. Examples in which lethargic individuals, with brief intervals, have slept weeks, and even months, are recorded. In one young lady, an irresistible propensity to sleep, however she may be engaged, arises, and the instinct, as it may be termed, having thus been satisfied, she resumes her avocations as before. Catalepsy, in all probability an hysteric affection, is so rare that many have doubted its occurrence altogether. The patient is seized in whatever attitude the attack happens to find her—for women are the almost exclusive subjects, and so remains, unless her position be altered, till it go off. Persons in this condition have nearly been buried alive; and some, it appears, have actually incurred this dreadful fate—dreadful, I say, because the patient, though unable to speak, appears to be conscious of her situation. Joseph Frank mentions a young girl whose condition approximated to catalepsy, or what has been termed ecstasis or ecstacy. So long as it lasted, she repeated a mournful recitative, on a religious theme, which Frank quotes, in Polish her native tongue.

Chorea, or St. Vitus's dance, *danse de St. Guy*, is characterized by involuntary motions of the muscles of locomotion and often of speech, generally on one side. The patient drags the leg or foot, and moves the arm and hand in a variety of jerking motions, particularly when he attempts to drink, at once ludicrous and absurd. I never met with a fatal case, though such is recorded by Prichard, Parr, and Copland. It ensues almost invariably before puberty; but I witnessed an instance in after life, which appeared only referable to this disease. I have seen the combination of chorea and idiotcy, or a condition approximating to it. A few stutter, others make a noise like the barking of dogs. However much the patient may suffer in the day time, he is exempt during sleep. Patients are apt to become worse when they restrain their involuntary efforts, and still more so if observed. The disease is more frequent in girls than boys, simply, I conceive, because comparatively debarred from unrestrained exercise in the open air. A boy of twelve, in whom the disease was very well marked, died of phthisis; in other respects, the complaint disappears with the advent of puberty. A certain mobility of constitution is, doubtless, a predisposing cause; fright, and, it is alleged, vicious habits, are said to have induced it. Hamilton has shewn an occasional connexion with deranged bowels. Lumbrici are sometimes witnessed, doubtless oftener as a concomitance than cause. I do not believe, that the disease has any connexion with structural changes in the brain, spinal marrow, or nerves. I can readily admit, however, reasoning from analogy, that local excitement or traumatic irritation in the encephalon, may be productive of it; but this, after all, is conjectural. In four fatal cases, Serres describes disease in the tubercula quadrigemina; but such various lesions have been averred as to render a connexion with any of them altogether problematical. Here it is necessary to make a distinction between dying with, and dying of chorea; in a chronic disease, many intercurrent and occasionally fatal maladies must ensue. I never saw a case in which I would

for a moment think of leeching or bleeding. The shower-bath, cold or tepid, or simple aspersions over the surface, sufficient exercise in the open air, attention to the bowels, nutritive food, and ferruginous tonics, are leading items in the treatment. Dupuytren affirms, that cold bathing is infallible in chorea, and certainly he was most successful in its application. His method was to raise the patient by two assistants, one holding the feet, another the arms, and to pass him or her rapidly through the water in a bathing tub. This was repeated five or six times in the space of fifteen or twenty minutes. Otherwise the child was placed on a stool, and cold effusion over the head practised five or six times in succession. In either case, the subject was well rubbed and dried; and then directed to run for half an hour or an hour vigorously in the open air. At the end of a few days, the child was invariably better; and, after perhaps a fortnight or two, a case of chorea of two years' standing would be completely dissipated. Tonics, as the sulphates of zinc or copper, are much thought of by some practitioners. Elliotson placed great confidence in drachm doses of the carbonate of iron, administered in twice its weight of treacle. He thus treated forty cases successively, the affection disappearing in from six to twelve weeks.

The treatment of epilepsy is not satisfactory; and it is confessedly difficult, whether by rational or empirical measures, to effect a change in the disorder. This is more especially so, when the latter has been of long continuance, the subject advanced in life, or addicted to intemperance, and when the case is complicated with cerebral disease or mental fatuity. As to active treatment, I find smart purging, in some cases bleeding and leeching, occasionally cupping the nucha, with counterirritation in the same situation by means of tartarized antimony, of considerable occasional efficacy. In plethoric subjects, and those labouring under cerebral disease, I am satisfied that by such measures, I have rendered attacks less frequent and severe; and have, consequently, arrested or retarded that tendency to breaking down of the constitution and mental decay which is so apt to follow in the train of the protracted and inveterate disease. Debilitated persons, however, neither bear nor require these measures; attention to the bowels, gentle stimuli, and even tonics, are occasionally expedient. Many epileptic patients are averse to regimen, or to be debarred from excess in the articles of meat and drink. I knew an epileptic young man who could consume a six-penny loaf at breakfast, and meat at dinner in proportion. An epileptic youth, now unhappily idiotic, became occasionally incoherent, saw imaginary objects in the streets, at the same time complaining of pain in his head. Cupping over the nape of the neck, and an aperient, invariably afforded relief; but it was difficult or impossible to restrain the cravings of his appetite, which he gratified when and where he could. In another case, illustrative of the occasional voracity of such subjects, an epileptic little boy to whom a shilling had been given, laid it out in the purchase of a dozen of oranges, which he devoured, rinds and all, on the spot. Many, again, drink to excess, notwithstanding pressing importunities to desist from a practice which experience has proved ruinous.

It is of importance, in the generality of cases, in order to avoid injurious cerebral excitement, to keep the patient on a moderate proportion of animal food, permitting bread and tea at breakfast, no lunch,

an early dinner, consisting of a little meat, with a reasonable allowance of bread and vegetables, stopping short of satisfying the appetite; in the evening, a minimum of bread and tea; no supper. Costiveness must be obviated by means of calomel and jalap, or other purgatives, and vigorous exercise on foot, taken regularly in the open air, the muscular system proving an excellent diverticulum for the blood. Patients of weak understanding are hard to guide, and commonly eat and drink as they please, to the proportionate aggravation of their complaint. To eat and to drink, with such, in fact, is to live, and they will rarely be debarred from the gratifications of appetite. Plethora, whether from succulent food, or temporarily induced by strong drink, is invariably injurious, rendering attacks more frequent and severe, as well as hastening the progress of coassociated cerebral disease. An elderly gentleman, seized, so far as I could learn, for the first time with epilepsy in the severest form, was freely bled and purged, then placed on a very restricted regimen, with the shower-bath, at first tepid, afterwards cold, each morning as he rose; he was also made to refrain from wine and porter, the only strong drinks which he consumed, and enjoined to take as much exercise on foot as his strength would permit. A little irritable in temper, this was soothed by refraining from everything calculated to ruffle or annoy. The paroxysms, at first frequent, now ensued at intervals of six weeks, then three, next six months—once apparently from a meal of bacon, lastly a year; since which time, now upwards of two years, no fresh attacks have occurred, and he is not only free from the complaint, but very much improved in his general health. I am attending two young women, in whom the disease, in other respects mild, has been mitigated by attention to regimen and the bowels, regular exercise in the open air, counterirritation, and repeated cupping over the nape. In one, the face, on the least excitement, becomes red as crimson, even up to the roots of the hair. There is no evidence, excepting in so far as the disease might be considered such, of cerebro-spinal lesion, nor can I trace it to any extrinsic source; so that, irrespective of its unknown origin, several years since, I would be inclined to refer the continuance of the disorder to habit alone.

Every one is aware that epileptic persons require certain attentions during the attack. Cleanliness is better ensured by stripping off the clothes and putting the patient to bed, or laying him on a hard couch, with the head somewhat elevated, securing free access of air. The tongue, and even the teeth, will be protected from injury, by carefully inserting a bit of soft stick, well covered with washleather or linen; the mouth and nostrils must be cleansed from froth. The propriety, or rather the necessity, as a general rule, of not permitting the epileptic to ride, or hold the reins in driving, is obvious; in fact, they should never be alone. I knew an epileptic lady who lost her life from falling into the fire; others have been drowned, or incurred casualties hardly less disastrous. When the pulse is full and hard, the face red and turgid, and the habit plethoric, I have practised a detraction of fifteen or twenty ounces, with seeming advantage. Should the attacks be frequent, or the subject of a spare temperament, this measure is inexpedient. It is well, however, to clear out the bowels with a mustard enema; and, so soon as the stupor abates, a draught, containing ether, valerian, and the carbonate of ammonia, may be tried. Before the

patient recovers, the room should be made to wear an orderly aspect; and every known exciting cause should subsequently be shunned. Worms, neuromas, calculi, and other conjectural causes, so far as may be, should be got rid of. Parr says that no medicine will so certainly avert an attack as an emetic administered about an hour before the expected accession. Sometimes a tight bandage on the limbs, one or both, whence the aura issues, has proved efficient; at others, cutting down on the place whence the morbid sensation has appeared to arise. Wardrop is said to have arrested the disease by amputating the last joint of the little finger, the aura originating in that point; Tissot, the great toe of one patient; and J. Frank, the testicles of another. An individual was cured by cauterizing over the saphena nerve in each leg. In a patient of Maisonneuve, in whom the disorder commenced in the arm, attacks were prevented by pulling the limb forcibly. In the nurse spoken of by Donatus, the disease, so long as the nipple kept ulcerated, remained away. As for removing epilepsy with the sulphate or ammoniac of copper, or the nitrate of silver, I have not experienced the least success with any of them. Some cases in Hufeland and Osann's Journal, by Seidler, as well as others adverted to in Duncan's Medical Commentaries, bespeak the efficacy of the oxide of zinc. The first of these occurred in the person of a robust sailor, in whom the disease came on with twitchings, *Zuckungen*, in the right arm, eventually extending to the breast and neck, with insensibility, and the usual phenomena of epilepsy. A scruple of the oxide, combined with ten grains of powdered orange leaves and valerian, and two grains and a half of the extract of hyosciamus, continued for twelve days, night and morning, and repeated at intervals, sufficed, apparently, to remove the complaint, which came on at longer and longer intervals, till it disappeared. On one occasion, before this consummation, it returned after a fit of chagrin, *Ärger*; on another, after pulse or kidney beans, *Hülsenfruchte*; which last, Seidler esteems a powerfully exciting cause, and would for ever proscribe. Recurrence to the zinc, however, was efficacious as before. A countrywoman, who laboured under the disease from two to three times in the month, took zinc, after the formula already repeated, and with such effect, that, four years up to the time of writing, she had remained free. A case is also reported of a young lady of twenty-eight, in whom the disorder had ensued, consequent on fright and suppression of the catamenia, at the age of eighteen. The patient wore the epileptic aspect, and experienced frequent recurrence of the disease. The oxide of zinc, in eighteen-grain doses, gradually reduced to four, appeared to free the patient from her malady, so that not a trace, *noch nicht eine Spur*, remained. In these cases, great attention was paid to regimen and the state of the patient's bowels; an emetic, composed of tartar emetic and ippecacuanha, was administered in the first. I have tried the oxide of zinc, perhaps not sufficiently, however, without deriving the least advantage. The nitrate of silver, when long persevered in, has the occasional inconvenience of blackening the patient's skin, inducing a disagreeable leaden or slaty hue, the whole cutaneous surface, the sclerotic, and even the fauces, participating. From one to four grains, every four hours, in peppermint-water, have been given with alleged success; and, certainly, when rational treatment fails, it is right to resort cautiously to this and other perturbing remedies. Tho

stomach, however, has been actually cauterized, of which Esquirol and Georget—the latter as regards a case in which the nitrate was exhibited eighteen months, mention instances. Not merely the mucous, but the muscular coat, was dissolved and destroyed. In one individual, Foville removed the disease, at least for five months up to the date of his writing, by means of turpentine.

VII—MANIA.

INSANITY has proved a source of equal embarrassment to the physician and metaphysician. The former studies to give a definition to what is not readily defined; while the latter is confounded by the occurrence of frames of mind no longer regulated by the ordinary laws of the intelligence. Pinel would test our knowledge of insanity by the same criterion—experience, namely, to which we submit our acquisitions generally; and to this must we come at last. Investigators into this subject appear to me to have committed the capital error of looking on the manifestations of the disease merely, as the disease itself; it is certain, however, that there must be something beyond. The associations of the past, broken and distorted, it is true, are reproduced; but we know nothing of the requisite precursory changes. Some have adverted to internal senses—to interior points of communication apart from the external senses and their lesions, but of such we are in almost utter ignorance. The difficulties connected with this important question, in my opinion, are insoluble; it is of no use hashing up false explanations; their futility, sooner or later, becomes obvious.

It is not easy to define insanity; it may, however, be termed a departure, in a false direction, from the ordinary modes of thinking, feeling, and acting of mankind, often with diminished, sometimes wholly impaired intellectual powers. We are well aware of the ravings of insanity; nevertheless, the vagaries of mere eccentricity, as well as the peculiarities of thinking men, have more than once given rise to the imputation. False proof, even, as melancholy records testify, has been suborned by malice and avarice. If the scattered thoughts, feelings, sayings, and doings of almost any individual, however, were sifted and collated with vindictive ingenuity, a verdict might, doubtless, be brought against most. Dr. Uwins, indeed, esteems the difference between sanity and insanity as more in degree than kind. The habitual utterance of erroneous or extravagant expressions, and commission of extravagant acts, are necessary to prove insanity; occasional displays of both at long intervals, and in moments of excitement, constitute the exception, not the rule. Conolly esteems insanity the impairment of one or more of the intellectual powers, accompanied by, or inducing a defect in the comparing faculty; a definition, like my own, somewhat of a paralysism. The disease has been divided into mania, monomania, dementia, and idiocy. A person labouring under the last has never lost his faculties; but he who experiences dementia, has once enjoyed them, and it may be, shall regain them again. Spectators, misled by the notion that the reasoning faculty was extinct in the insane, have actually passed through an asylum, without being once aware that the persons whom they met.

and perchance conversed with, were in this predicament. The maniacal, in fact, often display considerable acuteness: poor Lee, himself insane, justly observed, in reply to one who said it was easy to write poetry like a fool—yes, but not so easy like a madman. Some are comparatively lucid and discursive; others are so at one time, and not at another; while many, either continuously or at intervals, are justly designated raving mad. A good deal will obviously depend on previous intellectual and imaginative culture. When the disease is of long continuance, there is, for the most part, progressive mental impairment, perhaps ending in superinduced fatuity, or dementia. An elderly, maniacal gentleman, who had laboured under the disease between thirty and forty years, kept uttering, with various modulations of voice, and many impatient gestures, during almost all that time—now, what acts are these, go to warrant for it, Sir. Sometimes he appeared to converse with imaginary little beings, which he often caught in his hands, laughing at their contortions and attempts to escape, then, casting them away from him, reiterate his unvarying monologue. He had been under the care of the celebrated Willis, and his first detention, it seems, was made under pretence of a warrant from the Secretary of State, a circumstance which he never forgot, and which gave the colour to all his subsequent wanderings. False impressions on the senses are more frequent among the insane than what is commonly supposed; persons every way in their senses, however, are liable to similar hallucinations. A lady of considerable intellectual endowments, stated, on awaking one night, that she witnessed a gigantic head perched on her pillow. She, as well as others whom I have known, is still subject to analogous visitations. Dr. Bostock relates such occurrences of himself; the case of Nicolai, the German bookseller, is well known; and examples of similar perversion of the different senses are recorded by Hibbert, Abercrombie, and others.

I am much impressed with the impairment of the principle of association. Without some lesion of the great suggestive faculty indeed, it seems difficult to imagine a person insane; for, contrary to the assertion of Pinel, I should not esteem a person in this condition whose moral, passionate, or affective qualities only, were modified. Were we to do so, we might include the majority of our race, seeing that few, in this respect, do not err grossly, at some period of their lives, and many throughout. The exaggerations of self-love, selfishness, avarice, and sensuality even, have been set down as so many forms of monomania. In other respects, however, the insane are liable to causeless bursts of passion; and they are often indifferent to, if they do not hate or execrate, their nearest and best friends. Actual imbecility may ensue in the more advanced stages, but in the earlier, and more ordinary forms, the disease may be said to consist in the perversion of the great regulator, association namely, of the human mind. This view would seem to present a key to the solution of many difficulties connected with the investigation of the complaint, as well as suggest useful hints with regard to a cure. It is, I conceive, erroneous to say that the insane reason correctly from false premises; the very nature of the errors under which they labour, be they premiss, or be they conclusion, excludes correctness of reasoning. A man asserts that he is Buonaparte, Mahomet, or possibly, a divine personage—that he has discovered the perpetual motion—fancies that his head has been removed—that a snake

or an army resides in his belly—that he is too big to pass through the door—that he is made of glass—that he is destitute of a soul—that he is a wolf, a dog, or a cat, and raves accordingly. Foville mentions an old soldier, wounded at Austerlitz, whose cutaneous sensibility being impaired, believed that a machine had been substituted in his place. Some seem unconscious of the lapse of time, a fixed idea taking possession of the mind. A gentleman, according to Hill, left his intended bride, but never returned. A friend announced the death of the lover; the lady uttered an involuntary scream, and exclaimed—he is dead. From this date, and for half a century in all seasons, did this poor soul daily go to meet the coach, saying—he is not come yet, I shall return to-morrow. In an instance by Conolly, a clergyman on the point of marriage received part of the charge of a gun in his forehead. From the period of this occurrence to his death at eighty, he talked of nothing but his approaching wedding; was impatient for the happy day, believing himself young, active, and fit to be a bridegroom. Many assume a particular attitude, sitting, standing, lying, or gathered up. Wiseman tells us of one who stood for months propped against a wall. A female thought that a demon had carried away her body: Esquirol thrust pins into her arms, without eliciting the slightest expression of suffering. Another, who experienced uterine pains, believed in the nightly approaches of the devil. Calmeil, indeed, observes that those who labour under uterine disease, are apt to wander on subjects connected with the generative faculties. A patient of Foville was of opinion, that he had been sold to the devil for twelve hundred franks. The young man had gone with his father to a notary, before whom this sum was handed by a stranger. This writer relates curious examples of individuals who reiterated every action twice or even thrice. I knew one who repeated the tail of every sentence twice over. In these cases, both premiss and conclusion are at fault: it seems absurd to connect correct reasoning with an insane premiss. A man in common life, indeed, may reason correctly or otherwise, from erroneous data; but, unless the latter be of outrageous absurdity, no one reckons him insane. He is, moreover, open to conviction when his error is clearly pointed out, but the lunatic is rarely convinced. There is, however, the greatest variety in the intellectual manifestations of those of unsound mind. Some are silent and sad, some moody, others merry and talkative, some witty, others stupid. In many there is a vague, incoherent wandering, the mind running from subject to subject, while the conduct of the patient is equally irregular, fidgety, and disjointed. A few retain considerable mental power, and are able to read, write, compose, and solve intricate problems with facility; this, however, unless in the event of amendment, decreases with time. Many maniacs betray vindictiveness, brutishness, sensuality, cunning; in fine, the exaggerated expression of the baser passions observable in daily life. Some are obstinate, tricky, and malicious; others gentle, unresisting, and easily led. Much depends on the manner in which the insane are treated; the chains, the stripes, the bullying, and the coercion once generally resorted to, were alone sufficient to confirm mental alienation, and to induce terror and distrust. Nothing could be more reprehensible than the practice which once subsisted of submitting these unhappy beings to the brutal outrages of ignorant menials. A man of the mild-

est cast of temper, incapable unprovoked of hurting a fly, and with whom I have sometimes sat for hours, was assailed by one who should have known better, with needless taunts. One day the parties were alone together, when, all at once, the maniac sprang round and fastened like a tiger on his persecutor. The assault was so sudden, that it could not be averted, and would probably have proved fatal, had it not occurred to twist the poor creature's neckcloth, which caused him to relinquish his hold. The person adverted to, became much more guarded in his language, and never trusted himself singly with the lunatic again.

Madness often ensues in paroxysms, remitting so as to constitute a lucid interval, then recurring perhaps in a more violent form. This, however, must not be confounded with intermittent insanity, examples of which have been known to occur in the spring of every year. In a case by Pinel, the paroxysms lasted eight or ten days, during which the conduct of the patient was outrageous and menacing, although at other times his manners were urbane, and his principles correct. There was for several years, under Esquirol at the Salpêtrière, a young girl who, relieved by nothing, passed every alternate fifteen days in a state of profound dementia. Her well days, on the other hand, were marked by cheerfulness and attentive industry. Another passed many weeks seated on a chair, motionless and insensible; salivation at last ensued, and she recovered. Pinel approximates accidental mania, in its onset, progress, and termination, to ordinary acute diseases; at first, characterized by facility of bearing extreme cold, alternate voracity and disgust for food, sleeplessness, violent venereal desires, or their absence, singular changes in the colour and expression of the face, confusion, alteration, or suspension of the judgment, memory, and faculty of attention. Periodic mania, however, is in all respects analogous to the acute disease. Rush esteems drunkenness a species of mania; and Gall, conformably with his hypothesis, records madness on one side the head, the other remaining sound! The eye of the lunatic, sometimes fierce and bloodshot, has commonly a wild, roving, unsteady expression. Agrypnia is a marked feature. Patients have been known to remain days, weeks, and it has been alleged, months and years, without sleep. I have seen those, however, who slept soundly and well; but the excitement in some is so prolonged and intense, as eventually to wear out the frame, and entail premature dissolution. Haslam, in his *Treatise on the Moral Management of the Insane*, describes a female, placid and quiet for months, who suddenly became furious, and so continued for years. A lunatic, in the Salpêtrière, used to deluge her truss of straw with pails of water, and then lie down contentedly to sleep. Some are apparently indifferent to pricking or pinching. Pinel and others mention patients who picked holes in their cheeks; and Haslam describes a lady who cut away part of the upper jaw and two teeth, with a pin. Some pluck the hair off the pubis, and swallow, or try to swallow, substances dangerous or revolting. In fact, many, if permitted, lie naked on the ground, and wallow in ordure. I once removed a large brass hook from the fauces of a lady, where it had stuck in her attempts to swallow it. The same individual, before she could be prevented, gulped a box of aperient pills. The Venetian shoemaker who emasculated, then crucified himself, evinced little suf-

fering. Burrows speaks of a gentleman who, after thrusting his feet into the fire, only complained of pain as he grew better. A dragoon drank a pint of boiling water during the insanity produced by sun-stroke; he recovered, however, after three or four days' ptyalism and diarrhœa. The occasional frightful howling and screaming of lunatics are not necessarily indicative of actual suffering. This singular immunity is probably to be explained by the intense mental preoccupation which withdraws attention from outward impressions. Mead goes so far as to say: *Attamen illud maxime mirandum est in hac ægritudine, quod non tantum ea laborantes aliis morbis immunes sæpe conservat; sed et ubi quemquam occupat illis implicitum, ita quasi totum hominem sibi assumit et vindicat, ut eos non raro depellat ac profliget.* The influence of physical agents, however, is not arrested as has been imagined; the insane are often frost-bitten, and contract inflammatory and other diseases on exposure. They are indeed prone to abdominal, cerebral, and thoracic disease: scorbutus was once common in French hospitals, and formerly in Old Bethlem. Pinel, Foville, Esquirol, Prichard, and others, dwell on the frequency of tubercular phthisis: half the inmates of the Salpêtrière perish, it is affirmed, of this malady. Cutaneous diseases are not infrequent, and, in the advanced stages, paralysis. After the collapse ensuing on great excitement, many are fain to approach the fire, and enjoy the warmth which it imparts. In fact, as Georget, in his treatise *De la Folie*, observes, when the tension ceases, extreme susceptibility is perchance engendered, and the patient cannot bear the impression of cold. I do not believe that lunatics emit any particular odour apart from that engendered by their peculiar habits. Patients often fancy they cannot eat, or allege a divine command to refrain. They may give in after being forced; but if they hold out, are apt to perish. There is often great proneness to perverted sexual indulgence: men and women, previously models of correctness, perhaps become loose and abandoned in language, display all the features of satyriasis or nymphomania, and abandon themselves in a manner at once melancholy and revolting, to automatic excess. Pinel, in some cases, would refer the tendency to prior bad habits, in others, to a kind of nervous excitement—*excitation nerveuse*, induced by the maniacal condition. For my part, I would ascribe it to mere physical impulse, to which the patient, not controlled by reason or decency, yields without restraint. Men, it has been observed, can be physically restrained; but with females, it is difficult or impossible to practice any efficient coercion. There are no proper means of gratifying these desires; and were it otherwise, indulgence could only aggravate the disease. On recovery, morality and decency resume their sway, and excesses in act and speech forthwith cease. Some appear cognizant of their situation, and recollect, when well, the particulars connected with it. A patient has recently published an account of his own illness; and Willis mentions that an individual whom he cured, was not merely conscious of the coming on of his attacks, but anticipated them with impatience, from the enjoyment which it was alleged they afforded.

When recovery ensues, it is commonly within the first year or two, otherwise the disease is of variable duration. Madness and melancholy, says Greding—*Raserei und Schwermuth*, last in some for half a year, in others, a matter of one and forty. He mentions patients in the

Armenhaus who had attained a longevity of eighty-five years. Some, observes Ruer, in a paper in the *Medicinische Zeitung*, recover in half, at most a whole year's interval; a few in the third—*die Heilung erfolgte bei den Meisten binnen einer halben, höchstens ganzen Jahresfrist; bei einigen Wenigen verzögerte sich dieselbe bis ins 3te Jahresfrist*. Of two hundred and sixty-nine cases, Esquirol relates recovery in seventy-nine during the first three months; seventy-four within the next three; sixty-four in the four ensuing; twenty-three after the first year; and eighteen after two years. Of these last, some had been so many as ten years ill. In other respects, patients, exciting causes being applied, are apt to relapse; or, what cannot always be distinguished from relapses, to experience fresh, often periodical attacks. It is singular as it is important to know that a few who have been years ill, sometimes recover intellect, it may be a few hours before death. This has been adverted to by Zimmermann in his treatise *Von der Erfahrung in der Arzneikunde*. In the sixty-seventh page of the third edition of Cox's Practical Observations on Insanity, he makes mention of a lady who had been committed twenty years before to his charge, during all which time she never manifested a ray of intelligence, or a lucid interval, but who had rallied perfectly at the date of his writing. Her hearing, however, was impaired, and she afterwards relapsed. *Il est de notoriété publique*—it is matter of public notoriety, says Pinel, that a lady who had been delirious for seven and twenty years, so as to rend her clothes and soil her person with the most disgusting filth, appeared at the end of this period to waken, as if out of a dream, asked after her two young children, and could not conceive the fact of their marriage for so many years. The same writer mentions a young girl brought up with an uncle who one day suddenly mentioned his intention that she should marry. The catamenia happened to be flowing, and the poor girl, greatly surprised, exclaimed, I believe I shall grow mad! In effect, she fell into such a state of stupor and mental alienation, as to remain crept up in a corner of her cell without any apparent consciousness of her existence, or the locality which she inhabited. In about a year she recovered, oblivious as to the past. Pinel speaks of another girl who remained several years in a state of dementia, seemingly consequent on suppression of the menses. These, however, being restored, she instantly became well, and ran to embrace her mother, and assure her of the fact. Tuke describes a boy fatuous for years, who recovered reason on experiencing an attack of typhus, again to lose it on subsidence of the fever. Pinel mentions recovery from idiotcy after fever; some even advert to the alternation of phthisis and mania. Albert describes furious insanity in a young man lasting seven years, and fatuity for eight more, the heels being sunk in the buttocks, and the knees in the cheeks. Here, reason suddenly returned, but death ensued five days after. Such cases yield potent evidence as to the separate nature and existence of the thinking principle, as apart from mere organization and its mutations.

The term monomania, mania on one subject, occasionally employed as synonymous with melancholy, has come of late into use. Most insane persons, at least in the early periods, display some dominant error; while few are so occupied with their one-sided delirium, as not to rave on other points besides. While I would object to the term in an exclusive sense, it may be well to employ it as significant of some prominent

or leading delusion. The errors and prepossessions of lunatics are without number, and unaccountable as they are numerous. One believes that she is a jug or a tea-pot, another that her legs or hips are brittle and is afraid to stand up or sit down. A man believes that he is Jupiter, or the emperor of China, that he is headless, that one or more of his viscera are absent or irremediably diseased. Others, again, are seized with an irresistible desire to slay, to burn, to drown, to hang, or to steal. Conolly mentions a lady whose nightly occupation was the care of a large school; and she made so much noise whipping the tables and chairs, her imaginary pupils, as to disturb the inmates of the next house. Prichard speaks of a person who conceived himself a general, and who busied himself giving orders to surrounding troops, even while walking the streets. Some years since, in Dublin, a man whom the boys called Mahomet, knelt down, with great apparent fervour, before the sun, in the different thoroughfares. It is difficult to imagine how these errors of association originate. Phrenologists explain them by the diseased action of one or more of their alleged organs; but, while the errors of monomaniacs are innumerable, the organs of phrenologists are few. When Gall visited Chantry's studio, he said Sir W. Scott's bust was that of an eminent mathematician, and Troughton's that of an eminent poet: the Earl of Pomfret's head he affirmed a sure index of vast talent! As many forms of monomania have been created as there are erroneous tendencies; thus we have homicidal and suicidal monomania—kleptomania, or propensity to theft—pyromania, or the mania of setting places on fire; to which might be added toxomania, or the desire to poison, and many others. Monstrous excess in the way of sexual gratification, has been termed erotomania; some have believed in what is termed demoniacal possession; and Hoffmann, Sauvages, and others, have gone so far as to point out its signs and symptoms! Hardly less revolting is the belief still entertained in France and Germany, of men being turned into wolves, lyeanthropy, and of pursuing their prey by night. The terms *Werewolf*, *loup garou*, in the languages of these countries, refer to this delusion. Poor creatures, indeed, on the continent, have gone on all-fours, and imitated the howlings of the animal into whose image they conceived they had grown. A mason, observes a practitioner at Nancy, in a case recorded by Pinel, became morose and sad, sought out secret places, refused food for a couple of days, then darted off with extreme voracity and hideous yells; on the fourteenth day he escaped howling into the fields, the disease terminating on the eighteenth by an accession of fever. Other patients again fancy their conversion into dogs, hares, and even cats.

In homicidal monomania, we must maintain the mind insane, or admit the plea in favour of all murderers, and, as Collard de Martigny observes, in behalf of every species of vagabondism and criminality. Pinel describes a young man of fortune, utterly spoiled by an over-indulgent mother, who ended his career by throwing a woman into a well, after which he was immured for life. Instances, from time to time, are brought forward of parents seized with violent desire to destroy their partners or children, and who destroy them accordingly. Here, if we could pry into the previous thoughts and acts of the individual, we should, doubtless, be able to discriminate between the lunatic and the murderer. Some years since, a tutor in Edinburgh kissed the nurse:

one of two pupils told the tale, and the young man stabbed them both on the Mound. Feldtman, a tailor, was brought up, in 1823, at the assizes of the Seine, for murdering his daughter, because she would not yield to his desires. Monomania was the defence set up for this man, who, otherwise, was of weak intellect. A young man in the department of the Vosges, killed and disemboweled a woman, who would not listen to his advances. Here M. Collard denies the propriety of the term monomania; and justly observes, that when insanity is the case, this designation is more applicable. A French officer, of violent temper, who died idiotic at Charenton, threatened his wife, the apothecary from whom he received medicine, lastly, the individuals of the establishment whither he was conducted. Pinel mentions a lunatic released by the mob legislators of the revolution; armed with a sword, however, his vigorous and fatal blows soon disabused them of their error. Another instance, by the same writer, evidently of mania, though cited as one of monomania, was that of a lawyer of Clermont Ferrand, who had been some time at Charenton. After his return, he went with his wife to the cellar, cut her throat, then hid himself behind a barrel; the sister, who had come to seek them, he speedily laid prostrate; her cries brought the servant girl, who escaped with difficulty. This man, who was found walking quietly with his arms folded, on being questioned, averred that his wife and sister appeared demons about to drag him to hell, and that he had killed them to save himself. A carter, cited by Georget, walking armed with a hatchet at the head of his horses, to which he had given no food, killed, in succession, a woman, a boy, a man, then attacked two Jews and a countryman. Seized, and brought in contact with the bodies of the slain, he alleged that his evil genius had wrought these murders. In 1825, a person named Magne, called on a teacher, and, while learning his terms, stabbed him on the spot. Leaving this, sharpening his weapon by the way, he stabbed a notary; and entering a house, wounded a lady in the jaw; lastly, pursued by the gendarmerie, cut himself in the neck. The woman Cornier, condemned to perpetual hard labour, as guilty of voluntary homicide, decapitated her little girl, and threw the head into the street. Metzger, in his *Médecine légale*, relates how a woman, previously maniacal, killed a girl whom she happened to meet under the same roof. A shoemaker's wife, addicted to petty thefts during pregnancy, destroyed her four children, lest, she said, they should inherit her vices. While I write, a mariner on board one of our ships of war has been condemned for killing a little boy, to save him, the man affirmed, from the vices to which his mode of life exposed him. It does not appear that this person, who wrote to the boy's mother apprizing her of his intention, displayed any evidence of insanity prior to the fatal act. A ruffian, called Papavoine, was condemned and executed in 1825 for stabbing two children in the wood of Vincennes. The hideous enormity of the case of Léger, who ate the heart of a very young girl, whom he had strangled and violated, assuredly implies insanity—a plea, however, which was not allowed. Barbier tells of a newly-delivered woman, who, from some morbid sympathy, conceived a violent desire to imitate Cornier, so that her husband, to whom she mentioned the fact, was obliged to have her secluded. Almost while I write, a merchant in Liverpool, and a tradesman in London, from the dread of poverty, destroyed, the former his wife and one child, the latter four children, then

put an end to themselves. One of the most striking examples of homicidal mania on record, occurred a few years since, when the captain of a merchantman called his crew successively into the cabin, and butchered nine of them, one after the other, with an axe. Suicidal mania is occasionally witnessed. Costel relates how twelve old soldiers, at the Invalides, hung themselves, in succession, on a post; this being removed, the suicides were at an end. An epidemic of suicidal mania among the girls at Miletus, only ceased when the bodies were exposed. At Paris, a club, it is said, subsisted, which only became extinct with the self-destruction of the last member. A woman threw herself off the Monument in London; shortly after, such is the morbid tendency to imitate, a young man followed her example. Curious particulars connected with suicidal mania are related by Falret; religious insanity is apt to lapse into suicidal. Collins and Cowper both nearly succeeded in consummating self-destruction. The unhappy object of divine vengeance rushes to meet the fate he fears he cannot shun. Zealous teachers, unaware of the laws of the human mind, and ill provided with discretion, announce with too little qualification the terrible dictum—believe and be saved, or disbelieve and be damned. Belief is involuntary, but what wots the unhappy victim. According to Leuret, numbers were conveyed insane to Charenton, during the ferment excited in Paris, by certain missionaries, in 1821. This writer, in his *Fragmens Psychologiques sur la Folie*, cites the deplorable instance of a young woman, who, believing herself doomed for some fault, made an incision into the scalp which she detached so as to cover both ears; she then thrust the tongue of a buckle through the skull, into the superior longitudinal sinus, from which repeated discharges of blood eventually carried her off. In page 118 of the second edition of the *Traité Medico-Philosophique sur l'Aliénation Mentale*, of the illustrious Pinel, we have the story of a vine-dresser, whose imagination had been so wrought on by details of future punishment, that he believed eternal furnaces yawned to receive him, and that he could only avert damnation from himself and family, by what he called a baptism of blood. His wife escaped with difficulty, but he slaughtered two children, and cut the throat of a criminal who happened to be in the dungeon to which he was consigned. Confined in the Bicêtre, he announced himself the omnipotent fourth person of the godhead, destined to save the world by a baptism of blood. Ten years' strict seclusion, followed by four more in the convalescent wards, had restored him, it was hoped, to some degree of tranquillity. Procuring a knife, however, he attacked the superintendent, Pussin, who narrowly escaped; but two poor lunatics, standing by, were destroyed. Burrows mentions a schoolmaster, in the northern part of the State of New-York, who, to ensure heaven after his repentance, shot a child three years old. Most will recollect the trial of Emma George, April 1824, for strangling her little brother. The poor misguided girl had just returned from a revival, and wished her brother to go safe to heaven before the ago of sin. A very similar occurrence happened since; here, however, a water-butt was the medium of destruction. Lunatics often employ singular cunning to effect their suicidal purposes. Burrows adverts to a gentleman who purchased a grain of opium daily, for eighty days, alleging he could not sleep, then took the whole at a dose. He also speaks of a lady who thus procured corrosive sublimate, with which

she poisoned herself and three children. I also knew a person who purchased laudanum in different shops, till enough was obtained for the purpose of self-destruction.

Some refer hypochondriasis to the stomach, some to the brain, while others esteem it amere morbid aberration of the feelings. Various affections, occasionally implicating the digestive organs, the feelings, or the intellect, appear to have been comprised under the term. In that form of melancholy termed nostalgia—*Heimweh*, under which the Swiss, often the French recruits, or conscripts, used to labour, such was the result of continued low spirits and longings after home, that, unless counteracted by leave of absence, loss of appetite, incurable debility, and death, were almost sure to result. Hence the performance of the Rans de Vache, a Swiss air, was once prohibited, it is said, on pain of death. In one interesting case of hypochondriasis, an intelligent young man, whose letters afforded the best illustration of the complaint I ever met with, was convinced of successive incurable disease in the lungs, brain, liver, bowels, and kidneys. One day he told me he was quite black, and about to die. For all this, he slept well, his appetite and digestion were good, and he laboured under no corporeal disease. Here, as in other similar cases, I could have no hesitation in referring the complaint to the mind, or as Georget has it, the brain. After the disease had lasted a year, aperients, change of scene, horse-exercise, and reasoning being all employed in vain, I at last successfully combated it by rallying my patient on his dire apprehensions, representing how ridiculous it was for one who ate, drank, and looked well—who laboured under no bodily ailment, and was able to take any amount of exercise, to imagine he was about to die; and that even if his fears were well founded, such pusillanimity respecting an event which all had to encounter, ill became a man of any the least pretensions to ordinary fortitude. Hypochondriasis, however, is the frequent accompaniment of dyspepsia and other maladies, and may be combined with or lapse into insanity. Strange it is that this affection was once deemed identical with hysteria, and that a learned and laboured treatise has been written avowedly to discriminate between them. Hypochondriasis, says M. Dubois, *Sur l'Hypochondrie et l'Hysterie*, is but a passion, and the most egotistical of all passions, inasmuch as the subjects of it will tolerate no object or thing besides themselves. He divides the disorder into hypochondriacal, pneumocardiac, encephalic, asthenic, nostalgic, and hydrophobic monomania. Hypochondriasis, in the great majority of cases, being a mere mental affection, we are not to look for its origin in bodily derangement, although the latter, by turning attention strongly in one direction, may prove an exciting cause. The conviction of an ill-spent life, of idleness, and of debauchery, may induce a proneness. Certain vices are adduced by Tissot, Louyer Villermey, and others, but they can only act as exciting causes. Broussais, in his *Examen des Doctrines*, prop. 144, refers it, as he does most other diseases, to gastro-enteritis. The perusal of medical books by persons practically unacquainted with disease, is apt to engender hypochondriasis. Stricture, morbus cordis, and phthisis, were frequent imaginary complaints among first-year students in Edinburgh. It is impossible to name the disease or combination of diseases under which the hypochondriac fancies he does not labour. Some are prone, they think, to apoplexy, and forthwith attach a frightful signifi-

cancy to the different noises and throbbings connected with the local circulation; epigastric pulsation, whether in the cœliac artery or the aorta, is by others esteemed the signal of aneurism. Some complain that their saliva is sweet, with them an augury of the worst import; others see nothing but what is dreadful in the clear urine which they shed. A gentleman was seriously displeased when I did not recognize in a few scattered papulæ faintly discernible, a copious virulent eruption which had been his bane for years. A physician, writes Chomel, who had examined the remains of some individuals who perished after being bitten by a rabid wolf, was seized with the idea that he had inoculated himself. Straightway sleep and appetite were lost; he was threatened with suffocation when he attempted to drink, and, for three days, wandered through the streets in despair, till his friends, persuading him that his imagination alone was at fault, the symptoms were charmed away. Dubois d'Amiens speaks of one who was bitten by his dog, when angry. The animal ran off, no longer recognizing his master's voice; the poor man, overwhelmed with terror, refused to drink, while his disease, to appearance, daily increased. Some short time after, when there was hardly a hope of saving him, the chamber door opened, his dog appeared, jumped on the bed, and overwhelmed him with caresses. From that instant, all indisposition vanished.

Idiotcy, in some districts, as we perceive in the cretins and cagots of the Alps, appears endemic as well as congenital. In all long-continued cases of insanity there is a constant tendency to dementia and paralysis. Although I have recorded some exceptions, it rarely happens, when idiotcy proves the sequel of chronic insanity, that recovery ever ensues. Nothing, observes Calmeil, in his treatise *De la Paralysie chez les Aliénés*, is more deplorable than the aspect of an insane person in the last degree of paralysis; those cerebral lesions which suspend the operations of the intellect and derange the motive powers, reach their term; the subjects, motionless and paralysed, are reduced to mere vegetative existence. It is a species of slow death, in which the body decaying by degrees, presents the hideous aspect of partial destruction. Some idiots are so destitute of instinct, not to say intelligence, that without attention they would perish. Such was the condition of a little deaf, dumb, and blind girl at the Salpêtrière, discovered, life being almost extinct, beside the remains of her dead mother. Some discriminate between heat and cold, but do not go the length of seeking food; others, again, know those around; and Georget mentions an idiot girl of seven, who remembered and could sing airs which she had once heard. Conolly also gives an instance of the love borne by these poor creatures for music, and which, it strikes me, might be turned to good account. A few, again, are able to work at trades. Idiots, observes Georget, are commonly dirty; satisfying the wants of nature without selection of time or place, and often addicted to self-pollution. A few, not to mention the cagots, have begotten children. In some, the sexual organs are not developed, as was the case in a girl of sixteen, spoken of by Pinel, who lay constantly in bed, her head resting on her breast, the limbs continually agitated, and repeating automatically the word, *mama*. The face and head are not always ill formed or destitute of expression; in general, however, the head, the frontal portion more especially, presents a marked deficiency. Parchape and others describe remarkable

instances of early arrested development. Imperfect communication with outward objects, and deficiency of those inward sensations on which so much of our development depends, mark the condition which we term idiotcy; but the manner of its production, any more than of ordinary insanity and dementia, we do not know. Some idiots are so little regulated by impressions on the senses, as to swallow leather, bones, or excrement. I have known them to gulp soot, salt, and plaster off the wall. Esquirol gave some apricots to an idiot, who ate them up, stones and all, without distinction. As Calmeil observes, some may be taught to go through a ritual of devotion; but though possibly surprised at the sight of a deceased person, they are wholly unable to penetrate the mystery of death. According to remarks of Pinel, Esquirol, and Pastoret, founded on records of the Bicêtre and Salpêtrière, the one for men, the other for women, one hundred and forty-three idiots, or about one in forty-one, subsisted among five thousand five hundred and sixty insane persons. Idiots are commonly short-lived. While many are mild and harmless, others are spiteful, malicious, mischievous, false, and sensual, to the extent of their limited powers. Superinduced idiotcy, the dementia of Pinel and Esquirol, to which insanity, unless removed, is ever tending, presents none of the liveliness or activity of recent mania. The patients, though perhaps never wholly devoid of traces of their previous state, sink into nihility, exhausted and stupid; not even the shadow of their former selves, the mere prelude to the grave. Pinel truly enough affirms, that the first traces of dementia, of which such well-marked cases subsist in hospitals, exist even in the bosom of society. He speaks of a nobleman, brought up in the prejudices of his cast, who reduced every thing in his house to a perfect uproar; tormented his friends and servants; conversed now of the court, then of his wig, his gardens, his horses; waiting for no reply, and advancing fast to that moral disorganization which constitutes dementia. An ardent patriot, and great admirer of Danton, being present when this deputy was accused, retired in consternation, exclaiming—what, Danton a traitor, a traitor—there is no one to be trusted, and the republic will be lost! Reduced to complete alienation, he was sent to the Bicêtre, where he preserved a sort of automatic existence, only eating when food was placed in his mouth. Dementia, however, may ensue without precursory insanity. An artillery-man, in the second year of the republic, having invented a new cannon, Robespierre wrote to the projector in such encouraging terms, that complete idiotcy proved the result. About the same time, a young conscript being killed in a bloody action beside his brother, the latter became as a statue. He was brought home, when his appearance, and the shock of the other's death, reduced the third brother to a similar condition. Both were removed to the Bicêtre, where the bereft father used often to come and weep over the miserable wreck of his family. In another instance, a young soldier, terrified by the thunder of artillery in one of the sanguinary combats of the time, became insane. Bled, bathed, and submitted to the douche, he was brought to the Bicêtre almost perishing of syncope. At the end of the month, an accession of mania lasting eighteen days ensued, after which he gradually recovered. A Polish deserter was discovered drinking with his friends. The shock of his detection

rendered him motionless and speechless. Reduced to a state of irrecoverable dementia, he was tendered his liberty in vain. Pinel ascribes the occasional production of dementia to excessive depletion, as also with Esquirol, to suppressed menstruation. Calmeil mentions a young woman completely exhausted by repeated leeching and prolonged low diet. Her voice was extinct, her eyes dull and stupid, urine passed involuntarily, and her moral and intellectual faculties were reduced to nullity. A few months' succulent food, with care and attention, restored her to health and reason. About two-thirds of the cases of mania and melancholy which undergo treatment in France, prove successful, and a very few retain the primary character of their complaint; all the rest who do not perish, are reduced to dementia. Calmeil estimates the occurrence at about a sixth of the cases. Of three hundred and sixty-six men who entered Charenton, eighty experienced this condition, but of an equal number of females, twenty only; a difference to be ascribed to the greater prevalence of paralysis in males. Epilepsy, and the attendant vertigo, have always been esteemed sources of mental infirmity: in two hundred and eighty-nine cases in the Salpêtrière, however, Esquirol only enumerates thirty of dementia. The more frequent the convulsions, so much the sooner is the intellectual impairment consummated. Bloody effusion, and accidental productions in the brain, too often reduce the subjects to second childhood; in other respects, dementia may be associated with general paralysis, convulsions, epilepsy, cancer, and chorea. We cannot, says Calmeil, look on without astonishment, when we see persons labouring under partial dementia, playing at dominos, draughts, chess, and calculating by memory, who, at the same time, could not state their previous occupation, or even where they slept the preceding night. This writer adverts, with surprise, to the prejudicial influence of the sacerdotal calling on insanity. Hardly, he observes, has the latter subsisted a few months, ere memory is impaired, the ideas are lost, and habitudes the most improper lapsed into. Almost all the maniacs and monomaniacs who come to labour under dementia are addicted, it is alleged, to masturbation, which otherwise appears to hasten the fatal progress of the disease. Dementia is sometimes periodic; it may also be acute, the only form in which a cure is commonly to be expected. Patients, perhaps for a year labouring under dementia, coming on after repeated epilepsy and vertigo, so that memory, and the power of associating and expressing ideas, are lost—who soil their persons, and cannot rise or dress without help, if they only cease to experience fresh attacks, sometimes, as Calmeil remarks, recover feeling, judgment, and reason. In a young idiot girl, Breschet found the anterior lobes replaced by serous cysts: other alterations are recorded by Esquirol. In a case by Tiedemann, mentioned by Reil, the septum and corpus callosum were hardly developed, the hemispheres only held together behind, by means of the tubercula quadrigemina, anteriorly by the anterior commissure, and commissure of the optic thalami: the lateral ventricles were imperfectly covered. In a case by Calmeil, although the brain was deficient, and the convolutions small, the cerebellum, pons Varolii, spinal marrow, and nerves at their origin, were of the proper dimensions. I need not here enumerate the lesions in acquired dementia; but may observe that the writer last named, with all his

habitual practice in making examinations, records eight cases, in which he was wholly unable to detect the slightest change in the aspect, consistence, or volume of the brain.

The proximate cause of insanity is unknown; we are not aware what the condition of mind is which necessarily precedes or occasions it. Predisposing causes, however, are numerous and well ascertained. Esquirol, though not quite accurately, affirms, that imbecility is the ailment of childhood, mania of youth, melancholy of adults, and dementia of old age. I have met with only one instance, in a girl of nine, of insanity in childhood; but it was quite well marked. The reason why infants and children are less liable, is referable, I conceive, to the feebly-developed condition of their intelligence; were mere physical causes so influential as some imagine, neither age nor civilization should create the difference that subsists. There are few or no idiots or insane persons on the Coast of Africa. The only example of which I am aware, was in a coloured person who practised as a legal functionary: he recovered. I saw none among the North-American Indians: a nearly similar immunity is enjoyed by natives of the East. Lunacy, I should conceive, is rare in Russia, but have no returns to which I can refer. From puberty to sixty is the period of insanity. Mental alienation, says Esquirol, whatever be the sex or condition, is most common from twenty-five to thirty-five. A fifteenth proportion ensues in men before twenty; while, in women, during the same period as well as after fifty, it rises to a fourth. The number of the sexes affected in England is nearly alike; the causes, however, are not exactly the same in each. In France, at any rate, mania, by a fourth or even a third, is more frequent in women than men. This difference is probably to be ascribed to the influence of the female functions and organization, over the thence more mobile and impressionable female heart and understanding. Thus, the cessation or irregularity of the menstrual discharge, the influence of terror, fright, cold—greatly increased at menstrual periods, suppression of the lochia, and the puerperal condition generally, may all prove indirectly exciting causes. Esquirol, indeed, does not attach much weight to the puerperal condition apart from concurrent moral affections. On the other hand, disordered menstruation is one of the frequent results of insanity. Gooch speaks of women labouring under puerperal mania, as it is termed, being sensible of their situation, and aware that something was wrong with them. It sometimes resembles delirium tremens. He mentions one puerperal lady who thought she was the Virgin, and that a halo subsisted round her head. In one case, catalepsy and melancholy were combined; and the patient, though she would fall on the slightest push, retained any position in which she was placed. Open eyes, pulse, and warmth, were the only signs of life; otherwise, there was no appearance of respiration, the aspect was corpse-like, and the evacuations were passed in bed. Three several times she lapsed into this condition; the first for fourteen hours, the second for twelve, and the third for nine. After this she became melancholic, but in three months was able to resume house-keeping. As to William Hunter's other form of puerperal insanity with rapid pulse, generally fatal, I suspect it to have been the fever and delirium consequent on inflammation, as meningitis. Quick pulso and raving might of course ensue, as under other circumstances, from exhaustion. Thus, Syden-

ham describes mania and debility coming on after quartans, cured by generous diet, but fatal or incurable after depletion. Madness from starvation was exemplified on board the raft of the French frigate *Medusa*. At the Millbank penitentiary, where one ox head was made into soup for a hundred people, the men could not grind or pump, the women fainted in the laundry; while headache, vertigo, convulsions, and mania, from which, however, the officers and servants, whose bellies were better filled, proved exempt, became general. Some of these poor wretches were bled, and thereupon, as might be expected, became insensible. Many died; and Dr. Latham informs us—an instructive fact, that increased vascularity, with effusion between the membranes and into the ventricles, was observable in the brain. Esquirol, though Haslam's estimate be somewhat less, enumerates about one hundred instances of puerperal mania in eleven hundred cases in the Salpêtrière, but thinks the proportion higher among the rich. Drunkenness, gluttony, excesses of sex, blows, wounds, and disease in the head, bodily injuries generally, vegetable and animal poisons, prove occasional exciting causes. Of some tables drawn up by Esquirol, one relating to his own establishment, the other to the Salpêtrière, the following are the joint results. The first, which refers to moral causes, enumerates from domestic annoyances one hundred and thirty-six cases; unfortunate attachments, seventy-one; political events, forty-five; fanaticism, nine; fright, forty-six; jealousy, thirty-two; anger, sixteen; misery and reverses of fortune, ninety-one; wounded self-love, seventeen; foiled ambition, twelve; excess of study, thirteen; and misanthropy, two. The next refers to physical causes, so termed, as hereditary insanity, two hundred and fifty-five cases; puerperal convulsions, fifteen; epilepsy, thirteen; disorders of menstruation, seventy-four; puerperal insanity, seventy-three; cessation of the menses, thirty-eight; progress of age, sixty-four; insolation, sixteen; blows or falls on the head, eighteen; fever, twenty-five; syphilis and mercury, forty-one; worms, twenty-eight; and apoplexy, seventy. The first table includes four hundred and ninety cases; the second, six hundred and ninety. Of these, seven hundred and forty-nine relate to females in the Salpêtrière; and four hundred and thirty-one to persons, men and women, in M. Esquirol's private establishment. At Hanwell, according to the fifty-ninth report of the visiting justices, in two hundred and one males, and one hundred and seventy-one females, forty-three cases are referred to poverty; reverses, twenty; disappointed affections, fifteen; domestic unhappiness, twenty-seven; religious enthusiasm, fifteen; fright, grief, and anxiety, thirty-eight; to intemperance, sixty males, nine females; epilepsy, forty-three; injuries on the head, twenty; and paralysis, twenty-one. Physical to moral causes, the patients being of the lower classes, were as two hundred and nineteen to one hundred and fifty-three; even here, however, moral causes predominated among the females. It will be evident that many of the alleged physical causes, as those termed hereditary, menstrual and puerperal disorders, the critical period, and the advance of life, must be taken with reserve. I do not mean to deny hereditary insanity, more especially as Georget has observed among the rich; but I think the tendency has been exaggerated. Kings, and great folk generally, the Catholic nobility of England for example, from the comparatively limited choice offered in marriage, often incur

this deplorable calamity. The Jews, who, in opposition to the laws of nature, marry in and in, display frequent examples of similar imbecility. In the Salpêtrière, Georget affirms, it is not uncommon to witness two sisters, the mother, daughter, and sometimes the grandmother, of one and the same Jewish family. Similar causes, along with the secluded and peculiar habits of the Society of Friends, must help to fill the Retreat at York. Here, in point of fact, hereditary cases constitute above one third; while at Hanwell they are not above ten per cent. Esquirol mentions a Swiss merchant whose two sons became mad at nineteen; also two ladies, a mother and daughter, who both incurred puerperal mania at twenty-five. Ho also speaks of a family at Nantes, of which seven brothers and sisters were all in a state of dementia. I knew two brothers who severally became mad after hard drinking; subsequently, one of the sisters came to labour under dementia. In a collateral branch, intoxication, there was every reason to believe, actually induced the disorder in three brothers of the same family. In these cases it seems probable that there was a further hereditary tendency to the disease. In 1819, a grandmother and granddaughter were at the Salpêtrière for suicidal mania; while the mother, at the same time, was immured at Charenton. We find by the statistics of the Retreat, published at York in 1841, that of the whole number admitted, two-thirds, or sixty-four per cent for the men, sixty-eight for the women, had never been married; and of married cases, a fifth never had offspring. At Hanwell, again, there were sixty-six single to thirty-five married women, and sixteen widows out of one hundred and seventeen. Of four hundred and fifteen cases at the former, one hundred and sixty were said to be maniacal, one hundred and sixty-two melancholic, monomaniacal fifty-two, delirious six, in a state of dementia thirty-three, and idiotic five. At Hanwell, however, out of nearly the same number, while two hundred and five were maniacal, cases of melancholy and hypochondriasis are seventy-seven. At the publication of last report, there were nine hundred and eighteen patients at this asylum, of which five hundred and thirty-one, out of equal admissions, were females, a preponderance explained by the comparatively greater mortality, as well as more numerous recoveries among the men. At Palermo, the chief physical cause was epilepsy, not strong drink.

Moral causes, by the avowal of the best writers—Pinel, Haslam, Esquirol, Tuke, Burrows, Foville, Georget, and others, if not the only ones, are, at any rate, the most prominent and influential: at Palermo they predominate. The registers of the Bicêtre, well observes Conolly, and it may be added those of the Salpêtrière, shew that madness, even in the higher classes, is chiefly seen in those whose education is imperfect or irregular. Names of priests, artists, painters, sculptors, poets, and musicians, often appear on the list; while of naturalists, chemists, physicians, and geometricians, there is no instance. It is false to allege that the poetic tendency is allied to madness; but I am free to confess it of an ill-regulated imagination. In fact, the continuous and progressive culture of the intelligence, with adequate exercise of the affections and passions, is not only the best safeguard against insanity, but against the decay or perversion of the moral and intellectual powers constituting senile dementia. The venerable Göthe, not to mention Bentham and

others, retained a vigour of intellect at eighty, of which most men in the prime of life might well be proud. The first question which Pinel was in the habit of putting to patients who retained a glimmer of reason, was, whether they had experienced any annoyance or vexation—a question rarely resolved in the negative. Many, however, will be averse to reveal a hidden passion, perhaps entertained in opposition to moral dictates and social conventions. To how many gnawing sentiments and corroding emotions do not the conflicting elements of society give origin? Anger, hatred, jealousy, wounded pride, fanatic malignity, are ever shooting their winged arrows; and, though they fail in many directions, are sure to find a goal in some. Women, more especially in the lower classes, are liable, as Georget observes, to all the ill effects flowing from the misconduct of their husbands. Multitudes, indeed, in all ranks, suffer from the idiot, brutalizing excesses of their partners. The withering influence of superstition, how many has it not conducted to the asylum for lunatics, or more happily to that larger asylum—the grave? Superstition, united with ambition, observes Georget, gives rise to intolerant, persecuting bigotry—the desire of commanding, in the name of God, and of converting men. Contact with gloomy sectarians, adds Burrows, is a frequent source of insanity. Some of the most inveterate cases I ever witnessed, were owing to superstitious, I shall not say religious impulses. Just views on the subject of the Deity and his providence, are productive not of insanity, but of peace, comfort, and humble, though full reliance on the mercy and goodness of the Creator. The dull, vindictive fanatic, destitute of proper sentiments himself, or adequate respect for those of others, delights in hurling the indiscriminate anathema; and that lunacy does not oftener ensue, I can only ascribe to the moral prostration and hardness of heart, so apt to ensue in the teacher and the taught. The more absurd and inflated the harangue, observes Copland, the more frantic the manner, the greater the outrage on common sense and decency, the more deeply does the moral infection sink, and the more widely does it spread, till mental disorder, as proved by what has taken place in the metropolis, the revivals and camp meetings of Scotland and America, assumes a truly epidemic form. A wretch, in 1826 or 1827, at Troy, in the United States, told his auditors—such was their wickedness, that they would cut the Almighty's throat, and pull him, if they could, from his throne. At Naples, M. Berthollet, describing the case of a lady, whose nervous system had been deranged by the unwarrantable procedure, states that preachers in favour of certain missions, hold their hands over flaming torches, and whip themselves with scourges garnished with iron points. On one of these occasions, in which the sermon had been prolonged till the close of day, the gloomy precincts hardly lighted by the feeble glare of a few flambeaux, the officiating priest, to heighten the frightful colouring of his picture—hell, took a skull in his hand, invoking the soul of its former owner—if in heaven intercede, if in hell utter curses; then flung it from him with violence. In fine, when we consider the anomalies of society—fierce passions and stirring contentions on one side, with consuming poverty, wallowing sensuality, bodily and mental inaction on the other—multitudes, no ways qualified by education or self-discipline to perform their part in the multiplied allotments of life, with the

diseased and fragile constitutions, the wretched heritage of broken-down progenitors, we shall only wonder that insanity, this abortion of our partial civilization, is not even more frequent than it is.

The results of necroscopic investigations have not proved satisfactory; accidental or concomitant changes, that bore no real relation to the disease, have been enumerated. Softening, effusion, hemorrhage, inflammation, tubercles, exostoses, and other morbid changes, when they occur, may be alike productive of paralysis and insanity. Nothing, however, is more common than to discover alterations in the brains of persons whose minds were of the strongest; alterations which, had they subsisted in maniacal cases, would have been unscrupulously set down as connected with the disease. I have rarely examined a brain, at any time, in which there was not some change, however slight, in colour or consistence, some thickening of the membranes, some adhesion, often more or less effusion into the ventricles, some alteration in the glandulæ Pacchioniæ, pituitary, or pineal gland; changes often of little importance, perhaps bearing reference to anterior lesions, sometimes cadaveric. Greding, *Sämmtliche medizinische Schriften*, has devoted most part of two volumes to the *Leichenöffnungen* of the insane and epileptic. The crania, he affirms, were generally thicker than usual; the capacity of the skull, however, extremely variable. He speaks of numerous foramina sometimes penetrating so far as the brain, in the neighbourhood of the suturos. The pia mater and arachnoid, *Spinnewebenhaut*, were often softened; the former white, thick, slimy, not unlike the buffy coat of the blood in pleurisy. In one patient, sanguineous effusion subsisted on the surface of the cerebellum and medulla oblongata. He also adverts to the colour and even smell of the cranial contents, with other details needless to reiterate. In thirty-seven autopsies, Haslam records alterations, such as adhesion of the dura mater, cerebral substance hard or soft, serous effusion, and so forth; but, as Georget remarks, the results obtained by Willis, Morgagni, Greding, Meckel, Haslam, and Esquirol, are often contradictory, and always insufficient to establish any relation between delirium and organic change. Morgagni speaks of a firm cerebrum, and softened cerebellum; Esquirol of irregular crania, thickening of the membranes, ossified basilaries, hard or soft brain, serous cysts, and effusion. Delaye and Pinel-Grandchamp allege alterations in the cortical substance; and Bayle mentions six cases of mania and general paralysis, with pia mater adherent to the softened brain. Georget found the skull irregularly formed, dura mater thin, pia mater injected, the brain sometimes smaller, harder, or softer than natural. Foville, with Blainville and Andral, conceives the white substance of the brain to consist of several superposed layers, easily separated in healthy brains, but often not so in the insane. Sometimes the brain has been found so gorged with serum, that the latter ran out on making an incision. Esquirol and Foville describe numerous small serous cavities, varying in size from a millet-seed to a nut, and round which the rusty hue observable in apoplectic effusions, was absent. Foville further speaks of tubercles, hydatids, and encephaloid masses. An accidental tumour, he affirms, compressing both hemispheres, or bloody effusion in each, may produce all the symptoms of dementia, and has caused individuals, who, he conceives, should never have appeared there, to be conducted to asylums. A woman in the Salpêtrière, whose faculties were gra-

dually obliterated, and who had lost the use of both legs, presented a superficial mass of encephaloid, two inches and a half long, and an inch thick, traversing both anterior lobes; the remains of the brain, cerebellum, annular protuberance, and spinal marrow, being sound. In another subject received comatose, the anterior lobe of the right hemisphere was traversed from above downwards, by an irregular exostosis, an inch and a half long, springing from the orbital vault. He found the optic nerves hard and semitransparent in one who, up to the close of life, had been horribly tormented with visual hallucinations. In fine, I am decidedly of opinion, that, while structural change may be undoubtedly productive of delirium, fatuity, and dementia, mania has no necessary connexion with cerebral disorder, and that, in ordinary cases, it is quite futile to seek for its origin therein. I have already dwelt on the great frequency of thoracic disease, partly referable, no doubt, to maniacal exposure, partly to undue seclusion. The intestinal mucous membrane is sometimes diseased. Remarkable relaxation of the peritoneal folds, so that the intestines have been found thrust, as it were, to the bottom of the abdominal cavity, has been observed. This disposition, M. Foville conceives, is the source of the obliquity of the colon adverted to by Esquirol.

Georget affirms that patients in the event of rapid convalescence, are apt to grow thin and meagre—an occurrence which, if correctly stated, I am at a loss to explain. One of the first things indicative of recovery is the patient becoming sensible of his illusions, and ceasing to entertain them. This writer states that he often failed to recognize patients whom he had been in the habit of seeing for months; the convulsed contracted features of the maniac being replaced by a calm, expressive physiognomy. In nothing is this change more conspicuous than when insanity has worn the aspect of erotomania, and when words and acts of a character not to be described, yield to the most perfect decency in language and deportment. Maniacs, monomaniacs more especially, however, often display the exterior of a sound intellect, and passions under control. The termination of the disease is sometimes marked by certain discharges, cutaneous eruptions, and the like; but, in general, the return to health is gradual. Out of three hundred recoveries witnessed by Georget, not more than fifteen or twenty could be supposed to terminate critically. Gosse, for example, a furious maniac, had continual purging during the last six months of his disease. In Zimmermann, who laboured under mania after labour, the left breast became hard and painful, while purulent foci formed. Cataplasms, moistened with laudanum, seemed to afford relief; and, as the breast grew better, the wandering also ceased. The legs of a girl, maniacal for a year or more, swelled from walking bare-legged about the courts in winter: redness then ensued, followed by gangrenous phlyctenæ, on recovery from which, reason resumed its sway. Convalescents sometimes remain odd and eccentric; allusions to their past extravagance, and ill-timed reproaches, annoy them, and may even induce relapse. Hence the propriety, when practicable, of forsaking old haunts and habits, of frequenting new scenes, and forming new associations. Persons, after recovery, retain a proneness to the disease; and thence a liability to relapses and new attacks. All observers unite as to the greater frequency of these, when the patient has returned home too soon, and has been admitted to premature intercourse with

friends and relatives; indeed, some appear bereft of reason, whenever they leave the precincts of the hospital; exposed as they too often are, not to speak of the ordinary annoyances of life, to the unfeeling curiosity of some, as well as the brutal comments of others. Esquirol, in his observations on illusions of the insane, remarks that some recover reason so soon as they leave home, to lose it again on their return. Restored to their usual habits, and left to themselves, they become addicted to excesses, experience contradictions, feel anger, dread the customs of the world and the cares of business; prior feelings and ideas, troubles and suspicions, exalt or discourage them, and delirium breaks forth afresh. Many women, only reasonable in the Salpêtrière, have desired readmission, being conscious, after passing some days in their own families, that they were about to become ill again; a few, by an early return, prevented the recurrence of their disease; but others failed thereby to escape the evil which they tried to shun. At Charenton, there was a young man who often experienced intermitting madness; in the bosom of the establishment, however, he has not had an attack for five years. Georget estimates at one-tenth the proportion of those who relapse or who contract a fresh attack. Failing recovery, the patient eventually lapses into dementia; his language becomes an unmeaning babble; excitement is followed by exhaustion, and perhaps paralysis. Sometimes dementia is of rapid occurrence. The woman Lempereur, says Georget, after being about a year in hospital, left it, apparently cured; but, in a short time, was brought back, without an idea. She did not even complain when the actual cautery was applied to the nape; a year after, there was no change. The girl Félicité, furiously maniacal, during 1818, became pretty well, though slow in expressing herself, during the spring of the following year. Two months after, her intellect seemed to lose all its energy; she ate, drank, and slept, but uttered not a word—a state of moral prostration, from which nothing sufficed to rouse her. More patients recover between twenty and thirty than subsequently. Mania and paralysis, likewise mania and epilepsy, constitute complications in which there is rarely a chance of amendment. It is considered unfavourable when the health improves, reason remaining stationary. Georget mentions several patients, between twenty and thirty, excessively lean, and presenting features of phthisis, cured in so far, by applying the actual cautery to the sides of the thorax; they became fat and strong, but still raved on, and were, in fact, incurable. Pinel estimates six months as the average duration of a cure. Esquirol, however, fixes it at a year; and, in effect, almost as many became well the second year as the first; but, this once passed, the prospect of recovery is comparatively small. Out of twelve hundred and twenty-three recoveries, the patients being females, six hundred and four occurred during the first year, five hundred and two the second, eighty-six the third, and forty-one during the seven following years. Spring and autumn are the most favourable seasons; winter is the least so. At the Salpêtrière, idiots, epileptic, and paralytic cases, and those above fifty, amounting to about one-third, are omitted; all the rest are supposed susceptible of cure; and the result of twenty years' experience is the restoration of one-half. Bayle and Calmeil estimate the duration of cases, complicated with paralysis, at from thirteen to eighteen months; Foville and Delaye esteem it longer, and I have seen some pro-

tracted a couple of years. In well kept establishments, says Georget, the fourth at least, often more than the third, are cured. At Palermo, they are successful in about forty per cent of the cases. Of nineteen thousand five hundred and sixteen patients treated in different English hospitals, five thousand nine hundred and eighteen were cured; and of twelve thousand five hundred and ninety-two admitted into the Bicêtre and Salpêtrière, from 1801 to 1821, five thousand and seventy-two, according to Desportes, regained reason. At Hanwell, out of two thousand two hundred and forty-two admissions, five hundred, less one, have been cured, eighty-six relieved, while seven hundred and thirty-nine died. Out of eighteen hundred and sixty-three admissions, at Lancaster, there were seven hundred and fifty-four cures, or about forty per cent. Six hundred and fifteen persons, male and female, were admitted, during the last forty-four years, at the Retreat; and of these, out of each hundred cases of every description, forty-seven recovered, eleven improved, four and a fraction were unimproved, twenty-two died, while fifteen remained. Of four hundred and sixty treated at Charenton, by Royer Collard, eighty-seven recovered; and out of three hundred and thirty-five in Esquirol's private establishment, one hundred and seventy-three. By a census of Haslam's, seventy-eight, from ten to twenty years of age, were cured out of one hundred and thirteen; two hundred and twenty, from twenty to thirty, out of four hundred and eighty-eight; one hundred and eighty, from thirty to forty, out of five hundred and twenty-seven; eighty-seven, from forty to fifty, out of three hundred and sixty-two; twenty-five, from fifty to sixty, out of a hundred and forty-three; and four, of from sixty to seventy, out of thirty-one. Of eighty cases of puerperal madness, treated at Bethlem, fifty were cured. In the Belfast District Lunatic asylum, the admissions, from June 1829, to May 1842, were—males, six hundred and twenty-six; females, six hundred and thirty-two: total, twelve hundred and fifty-eight; of which ninety-two had previously experienced the disorder. Of the foregoing, six hundred and thirty-four were discharged cured; one hundred and twenty-one relieved; while two hundred and forty-nine died, two hundred and fifty-four remaining in the asylum. As for the mortality in mania, Esquirol estimates it at one in twenty-five; in monomania, as one in sixteen; and in dementia, one in three. Maniacal patients perish oftener of affections of the thorax and lower belly, than of the head. In abdominal and thoracic complications, Foville avers that patients frequently recover reason before death; and that those labouring under dementia, often acquire sounder and more numerous ideas. The deaths at Hanwell were thirty-two per cent; at Lancaster, forty-three and a half. At these asylums, more than half the whole number of deaths take place within the first year; at the Retreat, thirty-four only, out of one hundred and twenty-six, died during the same period. At the Irish asylums, comprising Armagh, Belfast, Carlow, Clonmel, Connaught, Limerick, Londonderry, Maryborough, Waterford, and the Richmond, the mortality varied so much as from six and a half, to twenty-two and a fraction per cent; the least mortality subsisting in Waterford; the greatest in Connaught and Derry, next to these Belfast and Dublin. In these asylums, the recoveries varied from thirty-five, or nearly, to fifty-three and a half per cent: the former for Waterford, the latter for Limerick. The sixth report of the

Worcester asylum, in America, alleges ninety per cent, as the proportion of recoveries in cases of less than one year's duration; twelve and a half in those of more than five years' duration; and three and a half per cent, in those of more than ten. The trustees observe, that the expense incurred in taking care of twenty neglected cases, has been thirty-two times greater than for the same number in which early and proper provision was made.

There appears to be but one opinion among pneumo-pathologists concerning the propriety of seclusion in the treatment of insanity. In slight cases, however, Conolly's observations would imply that he does not consider it necessary. Certainly, if a man's eccentricity hurt no one, and do not seriously interfere with his ordinary avocations and duties, it seems quite too great a stretch to deprive him of his liberty. The English law is not so jealous on this point as on most others. A medical man who has never made the physiology of sound, or the pathology of diseased mind, a study—who, perhaps, knows nothing of either, is consulted—particulars, real, imaginary, or perverted, are stated, and forthwith, justly or unjustly, he is asked to record his certificate of insanity. I have been applied to in a variety of cases, all, I believe, correct enough, but have had reason to be surprised at the lightness with which it was expected I should acquiesce in the conclusion sought for. In cases of decided mania, the impression on the part of Tuke, Burrows, Cox, Haslam, Willis, Foville, Georget, and Pinel, is in favour of seclusion. The insane, says Esquirol, should be confined, first, for their own security, that of their families, and of the public; secondly, in order to remove them beyond the influence of prejudicial external influences; thirdly, to overcome their resistance to curative measures; fourthly, to submit them to an appropriate regimen; and lastly, to cause them to resume their moral and intellectual habitudes. Patients, it is well known, yield much more readily to strangers than friends, on whom, in fact, they often look with eyes of hatred and aversion. Persons habituated to the charge of lunatics, are much better prepared to meet and overcome their frequently dangerous caprices, and, if needs be, to restrain their violence. It is a remark, by the way, of Pinel, that male lunatics often assent more readily to female control; and, conversely, female lunatics to dictation from the opposite sex. The imposing force which establishments for the insane present, deters, in fact, from acts of violence; and the patient, if inclined to suicide, finds it infinitely more difficult to effect his purpose. Dr. Prichard, of Northampton, having received a person from another asylum, chained and manacled, removed the instruments. The man, who felt a spurious dignity in his violence, returned, a little after, to beg that they should be replaced, as he was going to be furious. He was received with a smile, and told to begin as soon as he pleased; this patient was afterwards quite manageable. Willis remarked that foreigners were more readily restored in England than the English; and Esquirol, as well as other French practitioners, mentions that strangers were oftener cured in Paris than natives of that city. Pinel, indeed, is full of the advantages to be gained from travel, or living in places remote from the usual haunts.

It would seem obviously preferable to surround lunatics with none but rational people, inasmuch as they are more conscious of infirmity like their own, than what is commonly supposed. As this arrangement is

hardly practicable, however, the next best thing is to separate the violent from those who are otherwise—the raving mad from the convalescent. Those labouring under delirium of similar characters, it is considered better not to bring into immediate proximity. Lunatics, it is almost needless to observe, should be attended by those only who have had experience of the disease. The practice at the Salpêtrière of employing former patients as nurses, has been attended with the happiest results. The partial recollection of their previous condition enables them better to understand, as well as to minister with greater tenderness to the wants of the hapless beings entrusted to their care, while it possesses the further advantage of preventing relapse on the part of the nurses themselves. Servants, according to the brutal usages at one period prevalent in lunatic asylums, were allowed to beat and bruise the patients, also to encase them at pleasure in the long sleeves, laced behind, termed strait-waistcoats—a license wholly inadmissible. Formerly, indeed, violent maniacs were chained, which only made matters worse. Five and forty years ago, says Esquirol, lunatics were chained throughout Europe. Pinel cast off their fetters, at once, and for ever; and it was found that patients, to the number of eighty, confined long years in the Bicêtre, some of whom had raged and raved incessantly, and even killed those who came within the range of their chains, became comparatively mild and tranquil, and could be allowed to go at large, with perfect safety to themselves and others. The atrocities and abuses of which lunatic asylums have been the theatre, constitute a black page in the history of human nature; and it is not one of the least signs of the advancement of the times, that maniacs are treated in a manner more conformable to reason and humanity. The systematic enormities committed at the York madhouse, induced the magistrates to visit it, when secret cells, described by Godfrey Higgins, and others, with no bedding save straw saturated with filth and dirt, were discovered. Conolly more than once saw dying patients under restraint, their feet strapped or chained to the bedstead, even in the restlessness of death. Strait-waistcoats, padded iron collars, cumbrous leather muffs, belts with manacles, hand-cuffs, iron wrist and leg locks; some sitting on massive chairs, with lime underneath, without regard to age or sex; stripes, blows, and all the demoniac contrivances to save trouble, at whatever expense to the bodily health and tortured feelings of the sick, were resorted to. At Bethlem, up to 1815, hand-cuffing, besides chaining patients closely to the wall, as in the case of a man called Norris for so long a period as nine years, with other dreadful abuses, was in force. At St. Luke's, likewise, there was great scope for improvement. Contrast with these the arrangements at Palermo, in the asylum founded by Baron Pisani, in 1824, in which corporeal punishment or undue restraint is unheard of; the patients manage the affairs of the establishment, cultivate their own gardens, perform in a theatre built by themselves, and have balls once a week. At Siegburg, as we learn by Jacobi, the regulations are similarly humane. At Lancaster, the magic lantern has afforded much enjoyment; while music and dancing, weekly and daily newspapers, far from inducing over-excitement or restlessness, are followed by increased quiet and natural repose. In the Belfast establishment, under the direction of Dr. Stewart—and I might refer to other Irish asylums with similar encomium, I witnessed, with much interest,

the patients dancing and enjoying themselves, to the sound of their own music. Here, as well as at Lincoln and Hanwell, industrial occupations have replaced harshness and severity. At this last asylum, since 1839, nine hundred patients, of every gradation of insanity, are entirely exempt from personal coercion; solitary confinement, and that in extreme cases, is the only resort. Prior to the period above mentioned, forty-one cases were in constant restraint; fourteen were almost always fastened in chains, twenty in strait-waistcoats: some of them strapped to chairs, leg-locked, and in strait-waistcoats at the same time. These were all liberated; thirty-seven are yet in the asylum, in all of whom the habits and faculties are improved. Some, considered dangerous at all times, might be seen smiling at their work; others, sinking into dementia, have rallied. Conolly mentions a fine young man brought to Hanwell, whose ancles and wrists were ulcerated by hand-cuffs and leg-locks, worn before admission; for a short time he was troublesome, but became quiet in his behaviour, grew stout, was employed in the store-room, and in four months went away quite well. This excellent system, continued by Dr. Conolly, was commenced by his predecessor, Dr. Ellis, under whom the apartments were rendered warm, light, airy, and comfortable. When at work out of doors, the patient was provided with beer; in-door, his amusement was promoted by means of chess, draughts, books, and an excellent organ, purchased from the funds of a bazaar established by Mrs. Ellis. Always addressed with kindness and courtesy—his self-respect was never wounded—idleness and perversion were remedied, not by violence, but by some little bribe of tobacco, tea, or other luxury. Similar instances, illustrative of the good effects of firmness, gentleness, and habitual vigilance, in place of stripes and savage dictation, might be adduced. I shall only mention that Mr. Hill had discontinued personal violence at Lincoln, for three years, without a single accident, substituting kindness and unceasing watchfulness by day and by night; while in the Lancaster asylum, as stated in last report, the condition of patients was, in every case, ameliorated by the removal of instruments of coercion. Some, indeed, became so changed, as with difficulty to be recognized; and one patient, rigidly confined for a length of time, was discharged cured.

Georget lays down three important principles in the treatment of the insane; first, never to excite ideas or passions in the direction of their infirmity; second, not to combat, whether by reasoning, discussion, opposition, contradiction, or raillery, their irrational ideas or opinions; thirdly, to fix attention on objects foreign to their delirium, and to impress their minds with diversified ideas and affections. Conformably with this, he would seclude patients from the causes and objects that yield fuel to their delirium. Religious maniacs he would debar from devotional books and exercises. Every thing indeed should be done to shun irritation, and to treat patients as if they were responsible beings. Kings, queens, princes, and gods, are neither to be flattered nor opposed in their chimeras. Proof the most glaring has commonly little influence on the mind of the lunatic. It has, however, happened, by yielding to a delusion, that it has been eventually overcome. A patient believes that there are serpents in his belly; medicine is given, and some of these reptiles are introduced into the stools, when perhaps the impression vanishes. A young female conceived that there

was a living animal in her head; Esquirol adopted this notion, made an incision into the scalp, after which an insect was produced, and the delusion yielded. A patient thought the French authorities of 1813 were in pursuit of him; he would not believe there was any change. Newspapers were fabricated express; and Esquirol led him among the foreign troops with which Paris abounded in 1814, when he was almost immediately cured. A lunatic who threatens violence should be made to know that he is not master; and, for this purpose, an imposing force should be at hand, if needs be, to pounce upon and restrain him. When such a one has made himself possessor of a knife, sword, or other dangerous weapon, it will be best, if possible, to disarm him by address. With this intent, the superintendent, directing a fixed eye so as to arrest his attention, may advance steadily forward, while assistants, coming up behind, secure the patient. An envelop, as auxiliary to this purpose, is sometimes thrown over the head. On one occasion, a lunatic who had picked up a knife, was wheedled out of it by the advance of the physician, who came up balancing a key on the back of his hand. A female lunatic seized the wife of the superintendent by the hair, threatening to cut off her head; the lady only smiled, and said she knew she would not hurt a hair of her head. On another occasion, this same lady enticed a lunatic who was brandishing a knife on a table, to come and help her, being strong and able, she said, to cut vegetables for the dinner. Constant vigilance and soothing are more humane, as well as more effectual in restraining patients from climbing walls and trees, as well as kicking those around them. Hot-water pipes, heated air, or other means of ensuring warmth, are necessary during the winter months, in order to guard the limbs of patients from being frostbitten in their cells. Patients should be allowed to eat at discretion; it is miserable economy to under-feed the insane. Esquirol has more than once seen patients, long deprived of sufficient nourishment, lean and wretched, whom sound regular nourishment, baths, and bitters, in a short time restored to a surprising degree of health and reason. At the Salpêtrière, the nurse even carried bread round at night; as it was found that a refusal induced fits of anger always prejudicial. A few conceive that they have received a divine command not to eat. Here, the stomach-pump, through one of the nostrils, enables us to introduce milk, wine, and soup; a procedure certainly preferable to the shocking practice of knocking out the front teeth. Patients finding that they can be made to live, sometimes yield; others have been persuaded by an imaginary voice, as if from on high. Pinel has found the cold shower-bath or douche, the patient being seated in a warm bath, to subdue the most obstinate, and render them amenable to judicious control. It is principally, however, as a remedial measure, that it was resorted to by Pinel and Esquirol. Sometimes a small stream was allowed to fall from a reservoir on the head, the patient being placed in a covered bath. A sort of numbness was experienced for about an hour after. The bath was spoken of in a cheerful, jesting fashion; while the operation, never left to the management of servants, was conducted with order and propriety. Pinel deprecates all resort to terror and motiveless contradiction. Everything should be done to tranquilize and render the patient calm and docile. Foville, with whom it succeeded beyond his expectations, sometimes had recourse to the bath

twice or thrice daily; but, in place of the douche, proffered a cold sponge, or bladder filled with ice, applied to the head. Patients, whose violence nothing else sufficed to calm, and whose obstinate sleeplessness no other means contributed to allay, not only became tranquil, but slept five or six hours after the first day of this treatment. He alleges that he thus removed, perhaps in three or four weeks, acute and sometimes violent mania, monomania, and dementia; and thinks it the best resort in recent cases. Busser of Wohlau applied pounded ice in a bladder several times a day to the shaven head of a puerperal maniac, with perfect success.

The rotary chair, introduced I believe by Darwin, consisted of a beam armed with gudgeons, one end let into the floor, the other into the ceiling, with a horizontal bar to which the patient's couch or chair is attached. This, or the ordinary swing, Cox affirms, is productive of soothing and lulling effects, rendering the system further amenable to the action of ordinary remedial agents. He admits, however, that there were some on whom it produced no influence; and the procedure, I believe, is one now rarely resorted to. Music often proves useful, although I should hardly countenance the recent experiment of taking a crowd of patients to a public theatre. A subject in the Salpêtrière, plunged in the deepest melancholy, was so excited by lively music, as to dance and waltz till completely exhausted. Placed in bed, perspiration, followed by deep sleep, ensued, and the patient was cured. Of all the different means, however, commend me to constant, moderate, steady employment of the intellectual, and, so far as may be, of the affective powers, with regular daily muscular effort, so as to induce slight fatigue. Ellis has warmly advocated industrial occupation. Mr. Fletcher, consulting surgeon to the Gloucester asylum, conceives that literary composition, when available, is a remedy which exercises a most benignant influence. Rush, it seems, had a patient who, by transcribing the notes of a pupil, recovered reason in the occupation. At the Dumfries asylum, the occupation of amanuensis, as we are informed by Browne, has been followed with considerable advantage. The gentle, conciliatory language with which we should address maniacs, is no ways incompatible with the requisite firmness and decision. The vulgar and ignorant, indeed, cannot separate the exercise of these last qualities from bluster and violence; and have little or no idea of the *suaviter in modo fortiter in re*, which any one who has to deal with the insane, should erect into his motto. Burrows, with much justice, esteems tact the principal point in mental treatment. Different pursuits, as Haslam correctly observes, engage attention, and minister to enjoyment, varying with the culture of the intellect. When there is no access to such, indifference and stupor are too apt to ensue; and it cannot be doubted that, as regular habitudes of thought and moral discipline are good for the healthy mind, so the same, with sufficient amusement, under proper management, will benefit the insane. We find that religious instruction, judiciously conducted, in the Glasgow asylum, and elsewhere, has carried consolation and comfort to the minds of patients. Lectures on amusing and interesting subjects even, as chemistry, natural philosophy, or astronomy, might, I conceive, in some instances, prove useful. Insane patients should be treated with consideration and respect. Nothing proves more offensive than the insolent familiarity of menials

and others, who are not aware that maniacal persons, if in that class, do not necessarily cease to be ladies and gentlemen, or that they do not keenly appreciate both courtesy and refinement of manner. Manual labour, gardening, and, in fine, every species of physical exertion, without doubt, says Foville, are among the best means of soothing the insano. Agricultural, and other pursuits, carried on in the open air, are, in my mind, peculiarly conducive to mental serenity. Few tillers of the soil, those in miserable circumstances, the intemperate, and physically disordered, excepted, experience insanity. A sufficiently large garden, with lathes, forges, carpenter's benches, and so forth, indoors, should be attached to every asylum. Ladies and gentlemen, under pretence of horticulture or floriculture, might be induced to dig a little; so that with crickets, bowls, ball-playing, gymnastics, perhaps riding and rowing, pursuits might be adapted to every grade of life and form of disease.

The medical treatment of mania, irrespective of collateral disease, is matter of chance medley; we may sometimes succeed, but much oftener shall fail. The perturbation induced by a particular remedy may sometimes remove the complaint, but we cannot calculate on the recurrence. Acute and chronic concomitant affections are to be treated as in other cases, only seeing that patients do not undo bandages, or otherwise frustrate the intentions of the practitioner. A story is told of a lunatic in the Edinburgh infirmary, whose fractured thigh-bone being done up in the usual manner, the patient contrived to remove the splints and bandages in the night, and so adjust them to the sound one, that the change was not discovered till the surgeon, pronouncing the leg well, the lunatic convinced him by the callus on the other, that he had been treating the wrong limb all the time! Bleeding, says Cox, may be esteemed an important remedy in diseases of the mind; but adds, that the lips of the orifice, before binding up, must be secured by adhesive plaster. Pinel, however, was always on his guard against a practice founded, he says, on mere outward appearances, as redness of the countenance, an animated air, and brilliant eyes. A girl of fifteen, he relates, separated from her family, became melancholic and insane. She was bled by a country surgeon, who ascribed her disease to the blood; after the operation she became furiously insane, and in this condition was conducted to the Salpêtrière. Rush and Haslam are tardy in favour of blood-letting; Esquirol, however, not to speak of Haslam and Foville, while he admits with Pinel its occasional ill effects, would confine it to plethoric cases, and those which involve suppression of some accustomed discharge. The excitement of insanity, like that of anger, leads to flushed countenance and sparkling eyes, even in persons weak and anemic, and therefore cannot be relied upon as an exclusive indication. Like other perturbing remedies, however, venesection has occasionally been found to answer. Rush, in one case, drew a couple hundred ounces in the course of two months, five hundred in another in the space of ten. Joseph Frank obtained a cure in a case of mania, by drawing four pounds of blood. Burrows mentions an officer who had not slept for five nights, who then lost about twenty ounces from the hemorrhoidal vessels, and with care gradually recovered. Venesection in delirium tremens, or mania from drink, would of course prove destructive. Cox relates two instances in which emetics

removed the disease. Burrows found nauseating remedies useful in furious mania, in melancholic cases, emetics. Tuke derived advantage from the latter; but Haslam knew them to induce paralysis. Prichard avers that nauseating doses of antimony and ipecacuanha are always safe.

Purgatives, in great vogue with some, have hoary antiquity in their favour. It was a standing joke with the ancients, that such a one would have to repair to Anticyra, and there undergo a course of hellebore. Greding gave white hellebore a trial in maniacal and epileptic cases. Hippocrates speaks of it as a medicine employed by the oldest practitioners. Themison administered two drachms, his successors four. Hellebore, when chewed and swallowed, produces a sweetish, followed by a hot sharp savour, and increased flow of saliva, with vomiting, then purging. Bergman, a miner, the subject of one of Greding's cases, going into the smelting-house alone, conceived that a great black man jumped upon his shoulders, whereupon violent mania, with manustupration, ensued. Greding commenced with the powder; pills were then resorted to, eighteen drachms being consumed in all, with the happiest results. Slight inflammation of the mouth and throat, easily allayed however, with vomiting and burning at the anus, took place. In about a year after, he was perfectly well—*sehr wohl*. Eight and twenty cases in all are related, in two of which there were recoveries; a few improved, others died, some went into convulsions, one relapsed, while the rest became worse or remained as they were. Spontaneous purging, in rare instances, appears to have effected the resolution of insanity. Esquirol, apart from their efficacy in relieving gastric or internal derangement, avers the utility of purgatives in puerperal mania; and Foville suggests aperients, such as croton oil, which prove active within a small compass. Digitalis, found advantageous by many, is supposed by Cox to derive its utility from the production of nausea and lowering of excitement. Some wonderfully resist its influence; but it is always best to begin with a small dose. In recent mania, with hallucination in a young man, I found the patient about two in the morning in a heated apartment, with candles burning, and anxious relatives pacing about. I ordered out the lights and fire, relegated the crowd, and speaking a few soothing words to the restless and greatly-excited youth, induced him, the first time for several nights, to lie down. I then administered an aperient, and next day exhibited, every two hours, a spoonful of saline draught, containing a notable proportion of tartrate of antimony and tincture of digitalis, keeping him with the best effects, for some time under its influence. Thus, this case, which had stood a fair chance of being nursed into something formidable, was subdued in the course of a few weeks. These means, with change of air and scene, mildness, and sedulous attention, I found similarly useful in two cases of acute mania in the opposite sex. Cox mentions a patient who was furious when the pulse was ninety, at seventy perfectly rational, at fifty melancholic, and at forty half dead. This person, he avers, was completely cured by giving digitalis, so as to maintain the pulse at about seventy. Ho speaks of the care necessary to ensure a good tincture; and mentions an apothecary, who had substituted verbascum for digitalis in preparing it. Sander, a German practitioner, adverts to a young man who was freed from mania of two months' standing, in a few days, by large doses of the infusion of digitalis. The brain and bowels were greatly disordered. Opium is not

generally approved of; but I can conceive cases of maniacal delirium with sleeplessness and exhaustion, in which it might prove expedient. Dr. Binns of Liverpool, it appears, administered three scruples of opium to a maniac, with almost immediate recovery. Currie adopted the practice; and in one instance, it produced calmness, and, it is alleged, reason, in a few hours. Esquirol, however, avers, more especially when there are plethora and cerebral congestion, that narcotics prove hurtful.

Mercury, pushed to salivation, has been occasionally known to induce recoveries; accidental salivation also, has preceded a cure. Burrows never succeeded with this remedy, except in one instance; but Rush recommends it, and mentions a lady labouring under puerperal madness whom it completely restored. This person, who it seems had contracted an insurmountable aversion to her child, experienced a return of natural affection from the date of her salivation. Percival found turpentine useful; and camphor, in forty-grain doses, has been alleged successful. Burrows, who tried it in combination with henbane, does not speak encouragingly. Finally, it is stated by F. Willis, that tonics formed the basis of his uncle and grandfather's treatment. These gentlemen had the management of George III. and were, as all the world knows, quite famous in their way. In a case of violent raving mania in a lady, with great cerebral excitement, and sordes about the teeth, the elder Willis effected a cure by means of port wine and tincture of bark. In another, the subject being stout, the disease was aggravated by stimulating diet; but venesection and cold lotions to the head having suppressed the excitement, abundant nourishment and tonics effected a cure. Cox, indeed, in some cases, resorted to chalybiates. Tartar-emetic ointment, rubbed inside the legs and arms for several days, was recommended by Jenner; Burrows does not report favourably of its effects; but Foville says, that, in cases tending to chronicity, he has found it useful, when applied behind the ears, or on the hairy scalp. Valentine relates the cure of mania by means of the actual cautery, taking care to restrict it to the fleshy part of the nape. Georget knew an instance in which this precaution having been neglected, fatal encephalitis resulted. Patients, who uttered no complaint, and apparently experienced no pain, also paralytic subjects, received no benefit. In several cases in Esquirol's practice, Foville saw reason return by degrees, from the date of the suppuration. In the following, however, he would refer the improvement to moral causes. The subject was a young girl who previously did not pay the slightest attention to any thing. The preparations, however, greatly frightened her; and when she felt the hot iron, was so terrified, as to escape from the hands of those who held her. For five minutes she enjoyed all her reason, and entreated that she might be spared. Esquirol consented, provided she conducted herself properly, and was willing to work. She promised, and kept her word—Hill says maniacs rarely fail in this respect, was forthwith transferred to the convalescent ward, and became shortly after well. Two women, who had been in a state of stupor for a year, and on whom this operation was performed by Esquirol, assured Georget they had felt as if a torrent of fire were running through their frames, and that from that time reason returned.

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